Smithsonian

April 1995

25TH ANNIVERSARY ISSUE

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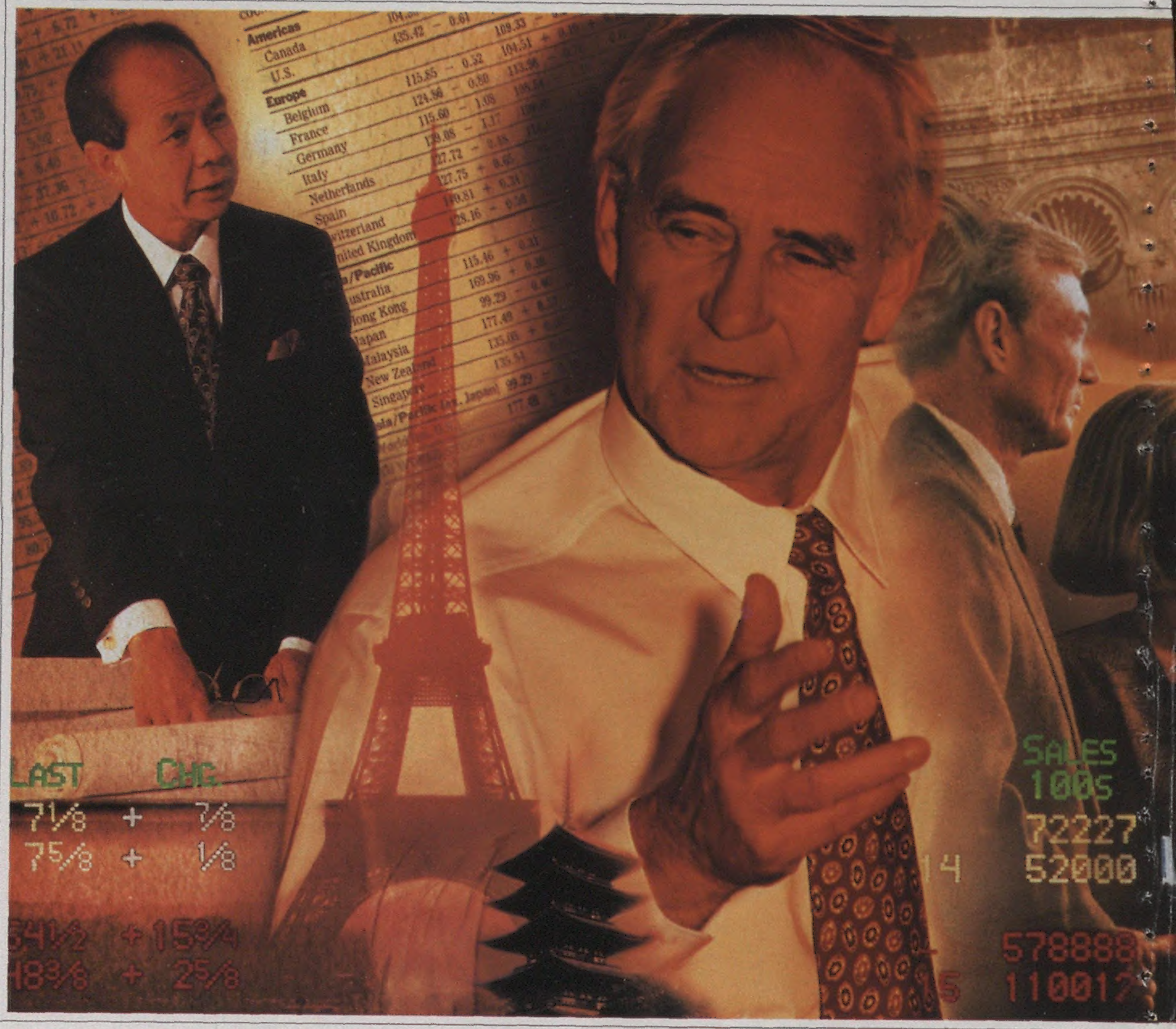

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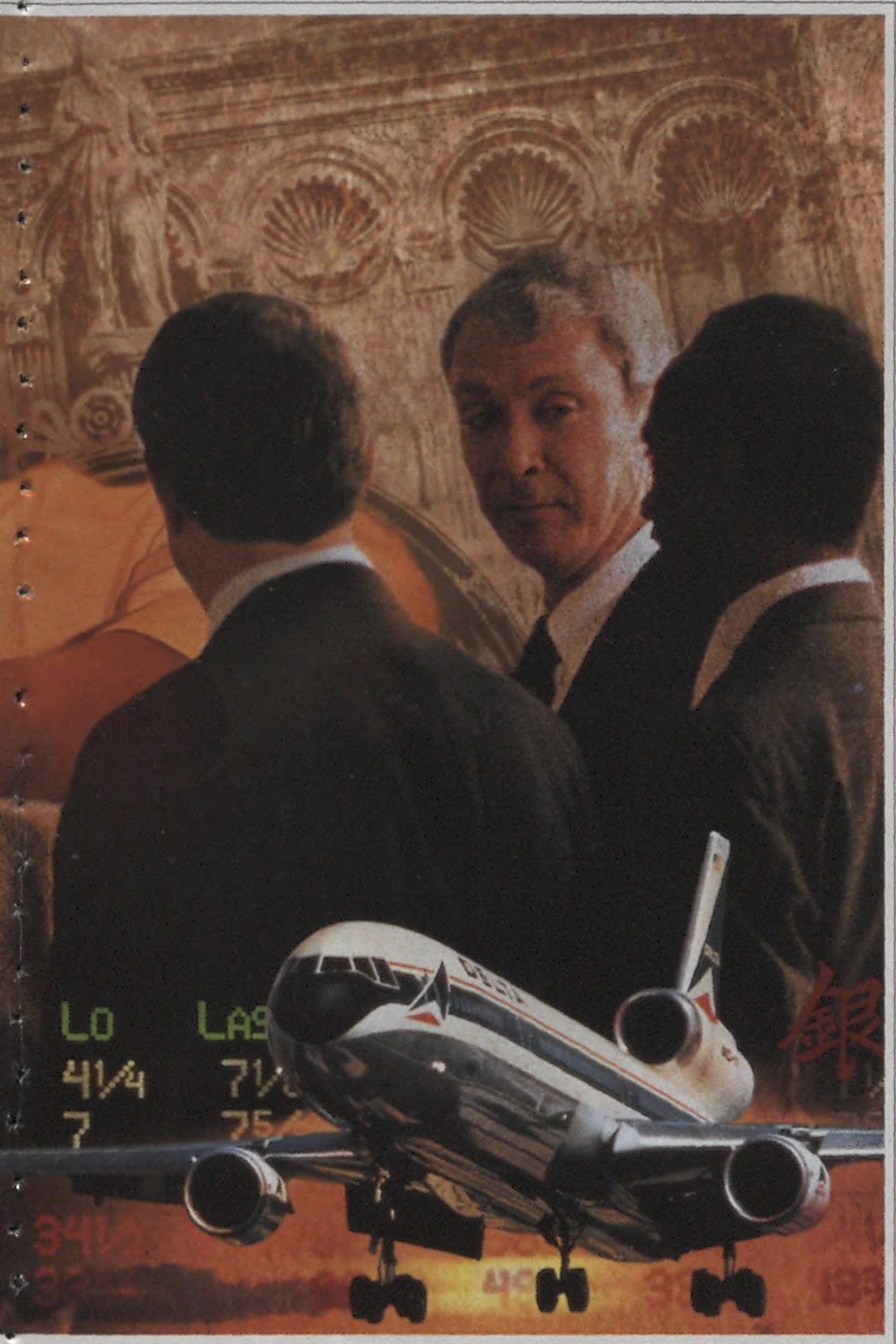

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April 1995

Smithsonian 25

Volume 26, Number 1

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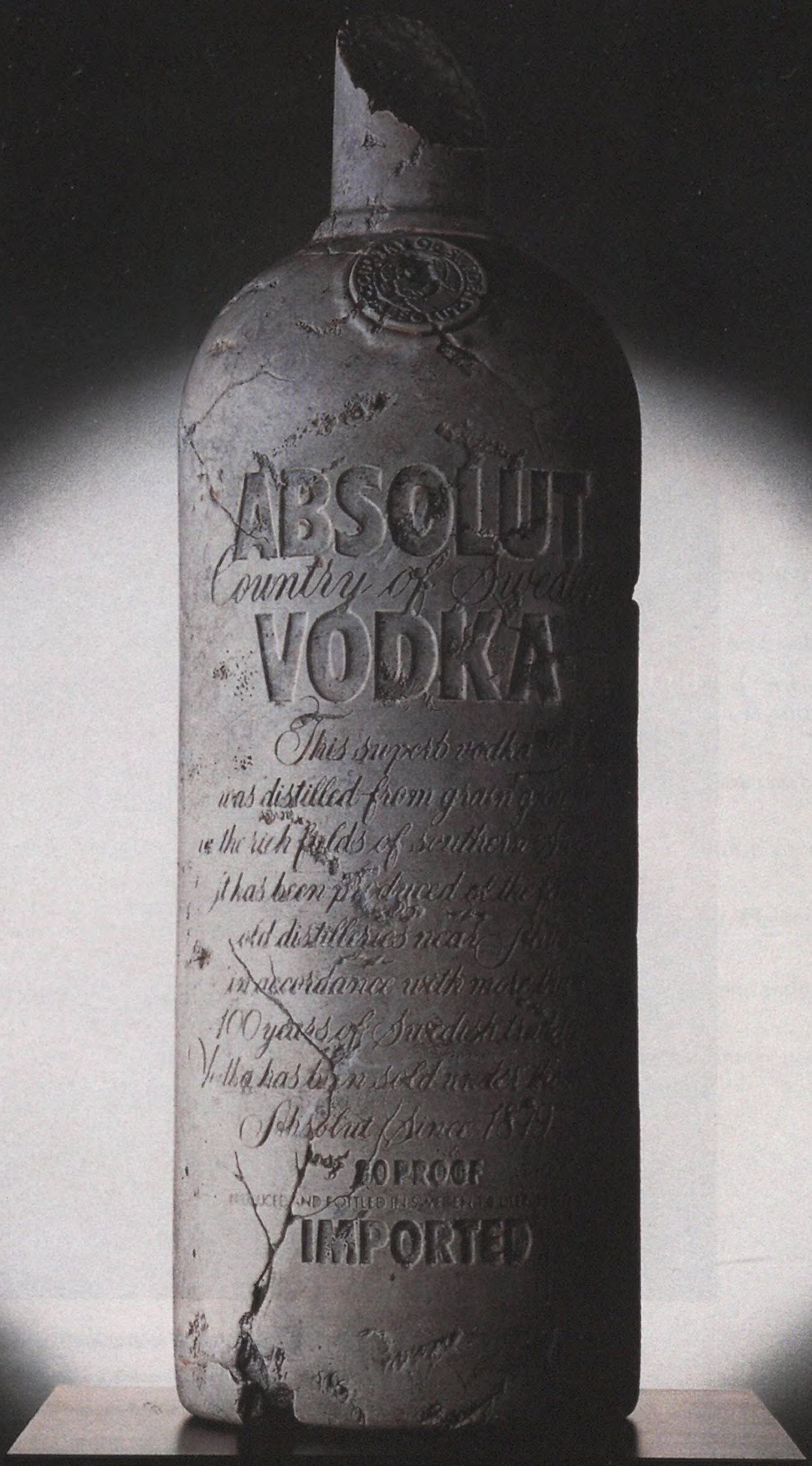

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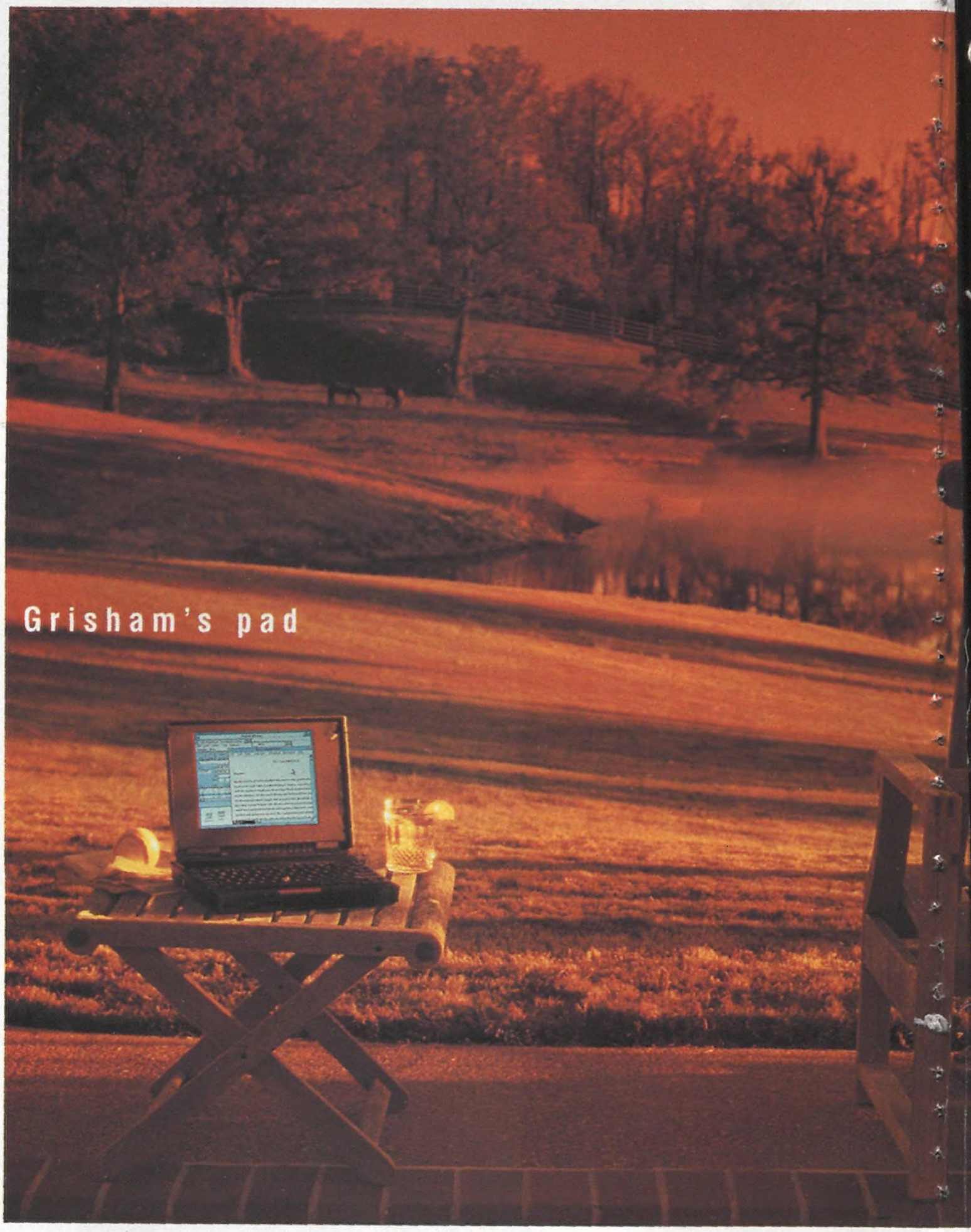

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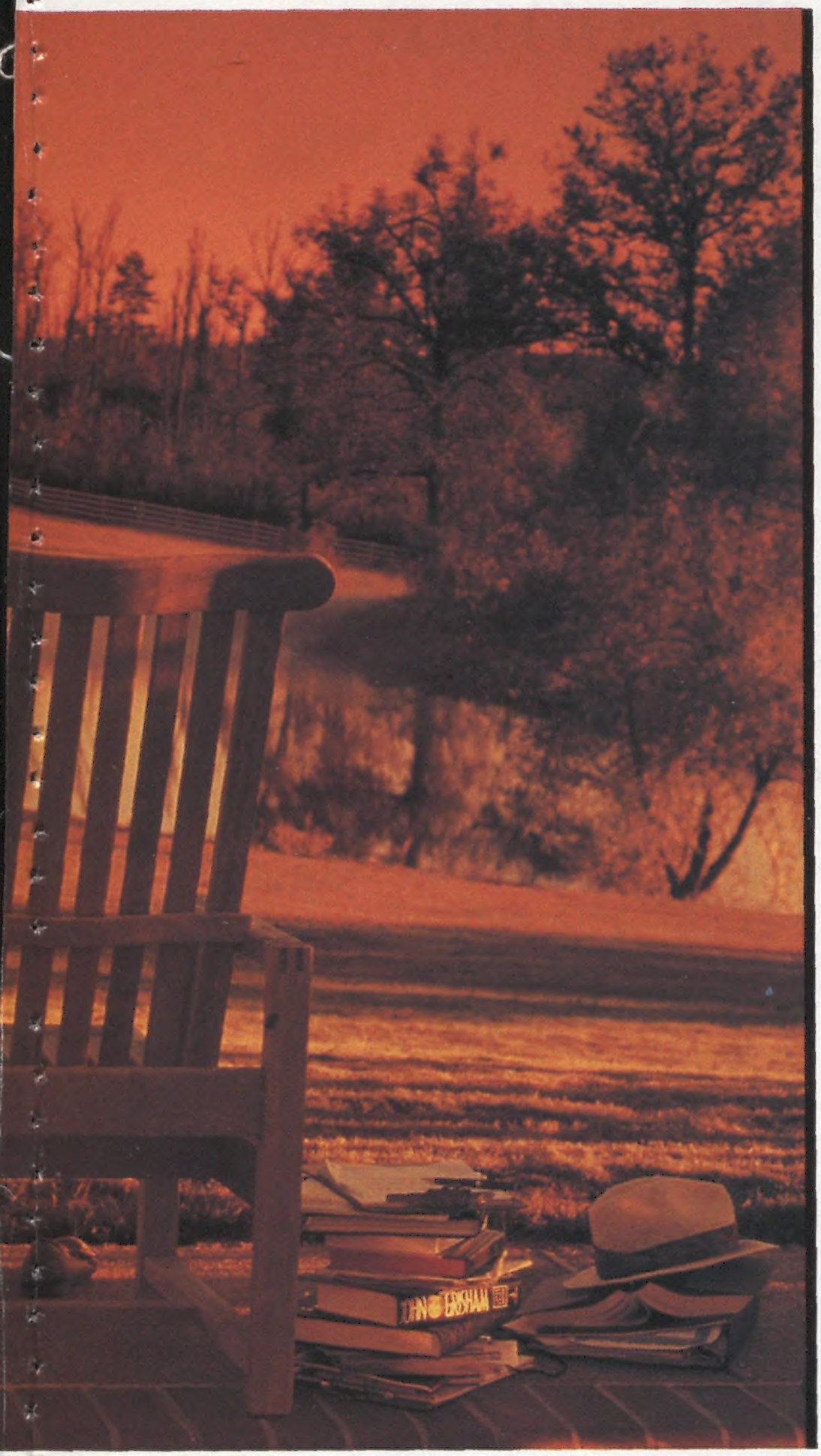

With an iced tea on the back porch of his Mississippi home. In the quiet writing space above his garage. Even at the baseball diamond where he coaches the "Mighty Marlins," his son Ty's little league team. Author *John Grisham* can take his new IBM ThinkPad® 360CE anywhere to work on his next big idea. Whether it's for a new novel, or, more importantly, for the Marlins' crucial '95 season opener.

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"YOU TAKE CARE OF THE THINGS YOU CARE ABOUT."

"It's up to all of us to take care of the Earth, as well as the things that live here. I work for Georgia-Pacific, a forest products company, and they

believe the same thing. When we learned that the Coho salmon and Steelhead trout were struggling to survive, we came up with a plan to help. We're putting large boulders and logs in the rivers to create calm pools where the small fish can grow and survive until they head out to the ocean. It was something that needed to be done to help the fish. And it feels good to know that my company is doing it." *Dick Patton, Resource Manager*

habitat

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Secretary Heyman's comments

Smithsonian Perspectives

The talent and commitment of our volunteers add immeasurably to the well-being of the Smithsonian

The last week in April is National Volunteer Week, and I can think of no organization that depends more on volunteers for its continuing vitality than the Smithsonian Institution.

The Smithsonian's first Secretary, Joseph Henry, quickly recognized the power of volunteers. Fascinated by the then burgeoning attempts to predict weather, Henry set up a system of more than 500 volunteers around the country to report their weather observations to him, first on a monthly basis by mail and later on a daily basis via telegraph.

Today our reliance on volunteers takes many different forms. For some of these men and women, volunteering at the Smithsonian is a commitment to being a student, to dedicating a substantial amount of time to the highly specialized and ongoing training that prepares them for the important work they do here. A number of volunteers make the Smithsonian a part of their lives, staying on for 20 or more years.

Volunteers are our ambassadors, the first contact that many people have with the Smithsonian. They staff information desks, welcoming visitors and answering questions ranging from "Where can I get something to eat?" to "How can I find out more about mollusks?" They respond to thousands of letters and hundreds of thousands of telephone calls each year. They serve as docents, or guides, helping visitors of all ages to explore our exhibitions. Some focus on giving tours for special audiences, for disabled visitors or tourists from overseas. They handle hissing cockroaches at the Natural History Museum's Insect Zoo and help youngsters learn about 18th-century life at the American History Museum's Hands-On History Room.

Volunteers provide invaluable assistance behind the scenes, supporting the work of researchers, conservators and other staff. They organize artists' papers, serve as translators and digitize photographs. They aid our membership and fundraising activities. They help to pack collections and prepare objects for storage or exhibition. They repair aircraft and 150-year-old tapa cloths. They provide support for public programming, performances, lectures, workshops, family programs and seminars throughout the Institution. Without the help of volunteers, nationally known annual events such as the Smithsonian Craft Show and the Smithsonian's Festival of American Folklife would be impossible.

Just as the opportunities for volunteers have grown from modest beginnings to the eclectic array available now, so have the numbers of individuals participating. The 5,256 volunteers reported in the survey of fiscal year 1994 conducted by our Visitor Information and Associates' Reception Center illustrate clearly the richness and diversity of volunteer support that permeates virtually every activity and organization across the Smithsonian. From our public arenas to the most remote of research areas, volunteers invested collectively some 574,800 hours of service, thus assuring the ongoing work of the Institution.

From time to time, volunteers share their perspectives on the experience. One woman says that she knew for a long time that when she retired, she wanted to be a volunteer at the Cooper-Hewitt, National Design Museum. A volunteer at the National Museum of American Art is delighted that her work "forces" her to continue to study art. A man who has collected stamps since the age of 7 enjoys explaining to National Postal Museum visitors what makes stamp collectors tick. A National Zoological Park guide says that part of his motivation is to get the younger generation interested in natural history and the environment. "I myself am constantly learning," he says, "and I hope to make a difference for others."

As we approach the 150th anniversary of the Smithsonian, the importance of an enduring volunteer commitment to the well-being of the Institution cannot be overemphasized. I join my colleagues in paying tribute to each of our own volunteers and to others who give their time and talent to worthwhile organizations throughout the country. The efforts they have expended make us a stronger institution and nation.

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Letters to the Editor

Life on Earth

Dear Sir: James Trefil compares creation with automobile culture (February 1995). Today's cars, road network, oil refineries, gas stations, et cetera, were developed through highly intelligent planning and precisely integrated energy at every level. All came about by design, not chance, and where there's a design, there's a designer.
Joseph G. McCormack
Gilroy, California

Dear Sir: Your article about life's inevitability should be required reading for all high school students.
Christopher N. Rose
Cedar Grove, New Jersey

Whale sharks

Dear Sir: We were struck by the similarity between the photograph of a whale shark on pages 96-97 and the hulking race car our great-grandfather designed and built for the 1950 Le Mans. Briggs Cunningham's *Le Monstre* (below) finished 11th at the 24-hour race, even though it had lost both first and second gears and crashed into a sandbank. For the Cunningham team, it proved to be a credible result in an initial go at that venerable event; for the automotive world, it was an introduction to a new age in American racing.
Hollie and Quintus Cunningham
Washington, D.C.

Reading aloud

Dear Sir: What was skimped on in David M. Schwartz's article was how much fun, how interesting, how sweet it is to read to one's children, and how much the reader learns. Best of all for me was the chance to cuddle with my three kids for a half-hour or more every night.
Gretchen Kriss
Rochester, New York

Angelica B. Cunningham

Dear Sir: Some of us take Jim Trelease's advice to an extreme. My husband and I introduced our son in utero to some of our favorite stories. By the time Elliott was born he had "heard" *Rabbit Hill* and *The Tough Winter* and most of *Winnie the Pooh.* We still read to him, of course; by the time he was 4 months old he was turning the pages of *Goodnight Moon* on cue by himself.
Jessica Andrus Lindstrom
Charlottesville, Virginia

Dear Sir: Jim Trelease's enthusiasm and beliefs are quite infectious, and all parents should heed his remarks. My parents were emigrants from Hungary with little education and no knowledge of English, but they had the prescient genius to ensure I read and was exposed to books. I still have my first book, *The Lincoln Library of Essential Information,* which my mother bought from a door-to-door salesman. She worked as a domestic and brought home the Hardy Boys detective-adventure stories after her employer's children had read them. At 43 I'm a rabid bibliophile with never enough space on my bookshelves, and funny thing, I can already see my sons are going to have the same problem.
Richard Ujvary
Kings Park, New York

Dear Sir: In fifth grade I wrote a book report on Herman Melville's *Moby Dick* that received a failing grade because it was four hours late. In sixth grade I received a D for a report on Ernest Hemingway's *Old Man and the Sea* because of spelling errors. I stopped reading for enjoyment that year.

I am 43 now, with a 2½-year-old son to whom my wife and I have been reading since he came home from the hospital. I've been collecting books for when he gets older. It took an infant to give back what the public schools took away so many years ago.
Dave Clark
Thompson, Connecticut

Dear Sir: My wife and I have been reading to our son, Evihn, every night since he was born four years ago. When asked what he wants to be when he grows up—a baseball player, a fireman, a musician, a race car driver—he replies, "A writer." Now, I admit this is a profession I'm struggling to claim for myself, but he has never cited me as his reason for choosing that career (and if he did, I'd cry, "Look at me, kid, you wanna end

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V I R G I N I A

up like this?"). His ambition to write, he reasons, is "because stories make me feel good."

I have great respect for Jim Trelease's mission and hope his words reach the ears of every new parent.

Brian W. Vaszily
Rolling Meadows, Illinois

Frederick Douglass

Dear Sir: The Union's first black regiment was not the 54th Massachusetts, as is oft reported, but the 1st South Carolina, later called the 33d U.S. Colored Troops, which was officially organized on January 31, 1863. Components of the regiment had been in training since early 1862, not long after the Union captured the Hilton Head-Beaufort-Port Royal area of South Carolina on November 7, 1861. The black 1st Kansas Regiment was mustered in as a battalion on January 13, 1863.

The 8th Colored Troops from eastern Pennsylvania and Delaware won the dubious honor as the black "infantry" regiment to suffer the greatest number of battle deaths: 119.

The 54th Massachusetts was mustered in on May 13, 1863, and was the first black regiment recruited in the North; it suffered 109 battle deaths.

Lewis G. Schmidt
Allentown, Pennsylvania

Babe Ruth

Dear Sir: Your article on Babe Ruth was the next best thing to a real baseball game. The photograph of the 1912 St. Mary's champions shows the Babe holding a catcher's mask and wearing a catcher's mitt on his left hand, his throwing hand. Was he ambidextrous and able to handle the tough position by throwing with his "wrong" hand?

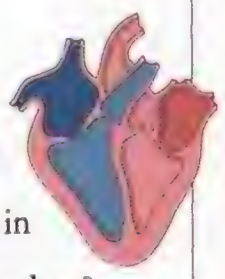
Bishop Edward O'Donnell
LaFayette, Louisiana

Baseball history lists few left-handed catchers, and mitts for them were even rarer. At St. Mary's Ruth wore a right-handed catcher's mitt, and after catching balls in his left hand, shoved the mitt under his right arm, grabbed the ball with his left and threw it. He played third base as a left-handed fielder with a right-handed glove. Ed.

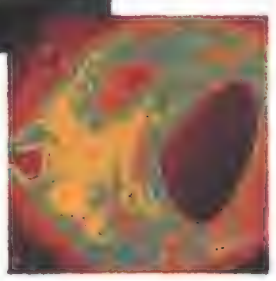
Dear Sir: A sentence at the end of Robert W. Creamer's enjoyable piece on the Babe threw me a curve. On the list of pantheon immortals, the author included Bobby Bonds. He meant Bob-

LDL CHOLESTEROL IS A TIME BOMB THAT CAN BURST INTO A HEART ATTACK. IS THERE ANY WAY TO STOP IT?

New drug therapies may be able to stymie the artery-clogging oxidation of LDL cholesterol and prevent heart attacks.



Scientists from pharmaceutical research companies discover more than 9 out of 10 new drugs.

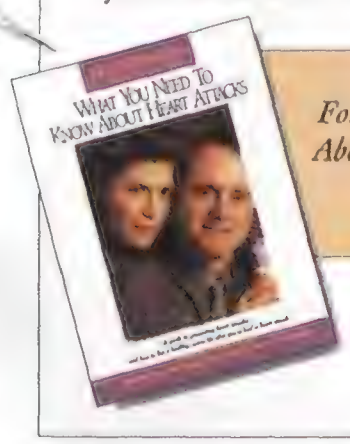


For years, LDL cholesterol has been the major suspect in heart disease. Finally, researchers are beginning to understand why. Once oxidized, LDL cholesterol becomes a powerful lure, attracting other cells. Eventually, these microscopic clumps grow to become artery clogging plaque. This can lead to atherosclerosis, the disease that causes 97% of all heart attacks that occur in men and women in the United States. Can anything be done?

There is hope. Right now, pharmaceutical company researchers are testing drugs that may be able to stop the oxidation process of LDL cholesterol. In all, pharmaceutical companies are currently developing 86 new medicines to treat or prevent heart disease.

p r e v e n t i o n

Anyone can have a heart attack. But age, gender and heredity are major factors in determining overall risk. Fortunately, there are other risks that you can do something about. People who smoke, have elevated cholesterol, high blood pressure and don't exercise are eight times more likely to develop heart disease. Other contributing factors include obesity, diabetes and stress. To lower your risks: Quit smoking • Exercise regularly • Maintain a low fat diet • Lower your cholesterol levels • Get regular medical checkups.



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The above image appears in a poster produced for the Eight Northern Indian Pueblos Council, Inc.

by's son Barry, who at midcareer may well be on his way to making the list. The gaffe was a pop fly in an otherwise home run of an article.
David McCord
Adel, Iowa

Dear Sir: World War II added a diabolical dimension to the Babe's worldwide renown. Often Japanese pilots leading banzai charges would shout: "To hell with Babe Ruth!"
Edward J. Brennan
Evanston, Illinois

Charles Csuri

Dear Sir: Regarding your February cover, it's the Republicans greeting Newt Gingrich.
John H. Worthington
Bloomfield Hills, Michigan

Object at Hand

Dear Sir: The rather esthetically bent Hughes H-1 propeller is on display at the Bowers Museum of Cultural Art in Santa Ana, California. Philip Schmaeling, who spent most of his career tending to Hughes' *Spruce Goose*, fortunately for many years had kept the propeller from being scrapped by storing it in his garage. Accompanying the exhibit is an interesting video showing not only Howard Hughes warming up the engine, taking off, making trial runs and the aftermath of his making a valley landing, but also of Hughes taking no personal responsibility whatsoever for the crash.
Bruce Henderson
Santa Ana

Dear Sir: I was working as a mechanic for the Pacific Automotive Company in 1936 when Howard Hughes brought in the H-1 with its twin Wasp Juniors for servicing. After that, Hughes always asked me to work on his planes at PAC, sometimes coming out to my house in the middle of the night and tossing pebbles at the window to wake me up because he wanted to run up an engine.

When he was about to take his Lockheed Lodestar around the world in 1938, I discovered metal in the oil screens of the Curtiss-Wright G-205's, which required disassembly of the engines to install newly developed silver bearings. We worked around the clock, and when I was supervising the test run, Hughes himself appeared at dawn

with food and hot chocolate for the crew.

I like to remember Howard Hughes as the dedicated aviator he was. And he wasn't a bad mechanic, either.

Arthur R. Kennedy
Lisbon, Portugal

Shaving

Dear Sir: The honing of a double-edged razor blade inside a glass tumbler was a procedure, born of financial necessity, that I mastered while attending college on the G.I. Bill in the late '40s. The process extended the cutting life of the blade, which would have irked Mr. Gillette, but I do not remember the number of additional shaves it provided. In fact, I don't remember a lot of what I learned in college.

Harold J. Bidigare
Fountain Hills, Arizona

Last Page

Dear Sir: Regarding signs telling us not to do things, during the 1960s my wife and I toured the Tower of London. On the river side of the Tower was a sea walk with about a dozen old cast-iron cannon, the smallest of which was 5 feet long and 14 inches wide, resting on wooden cradles. A sign over them read, "Please Do Not Manhandle The Guns."

Robert J. Zets
Warrenton, Georgia

Dear Sir: I theorize there are so many admonitory signs posted around the country that no one pays attention to them. The only 100 percent effective sign I've ever seen is on the Arkansas Interstate: "Hitchhikers May Be Escaped Convicts."

Jerome Beatty
Waquoit, Massachusetts

Dear Sir: My brother, who is a lawyer in London, England, recently came to visit my family and me in Southern California for the very first time. Lawyers in England come in two species: barristers (those who bask in the glory of courtroom appearances) and solicitors (the workhorses). My brother, one of the latter, resented the frequent signs at doors of restaurants and even at the entrance to the office building in Century City where my son's law office is located: "No shoes, no shirt, no service" and "No solicitors."

Konrad Kingshill
Claremont, California

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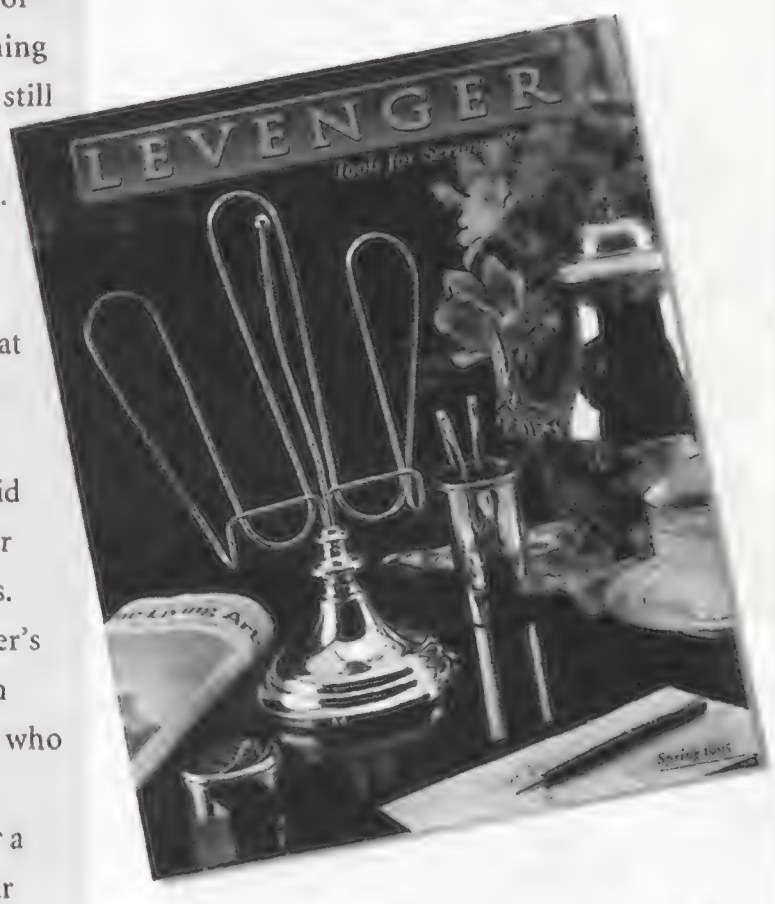

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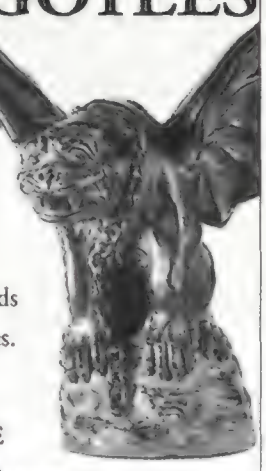

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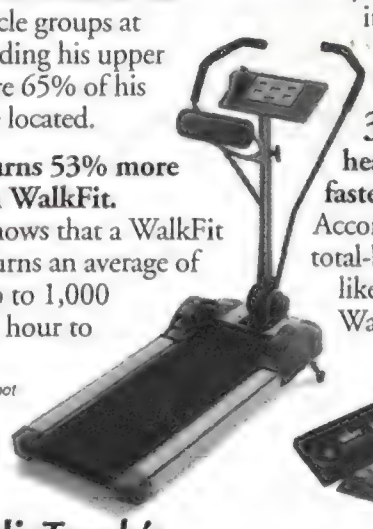

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Highlights Continued

Dear Sir: Using his one-shot camera, photographer Harry Warnecke exposed black-and-white negatives through red, green and blue filters, not red, blue and yellow.
Louis Montouri
St. Petersburg Beach, Florida

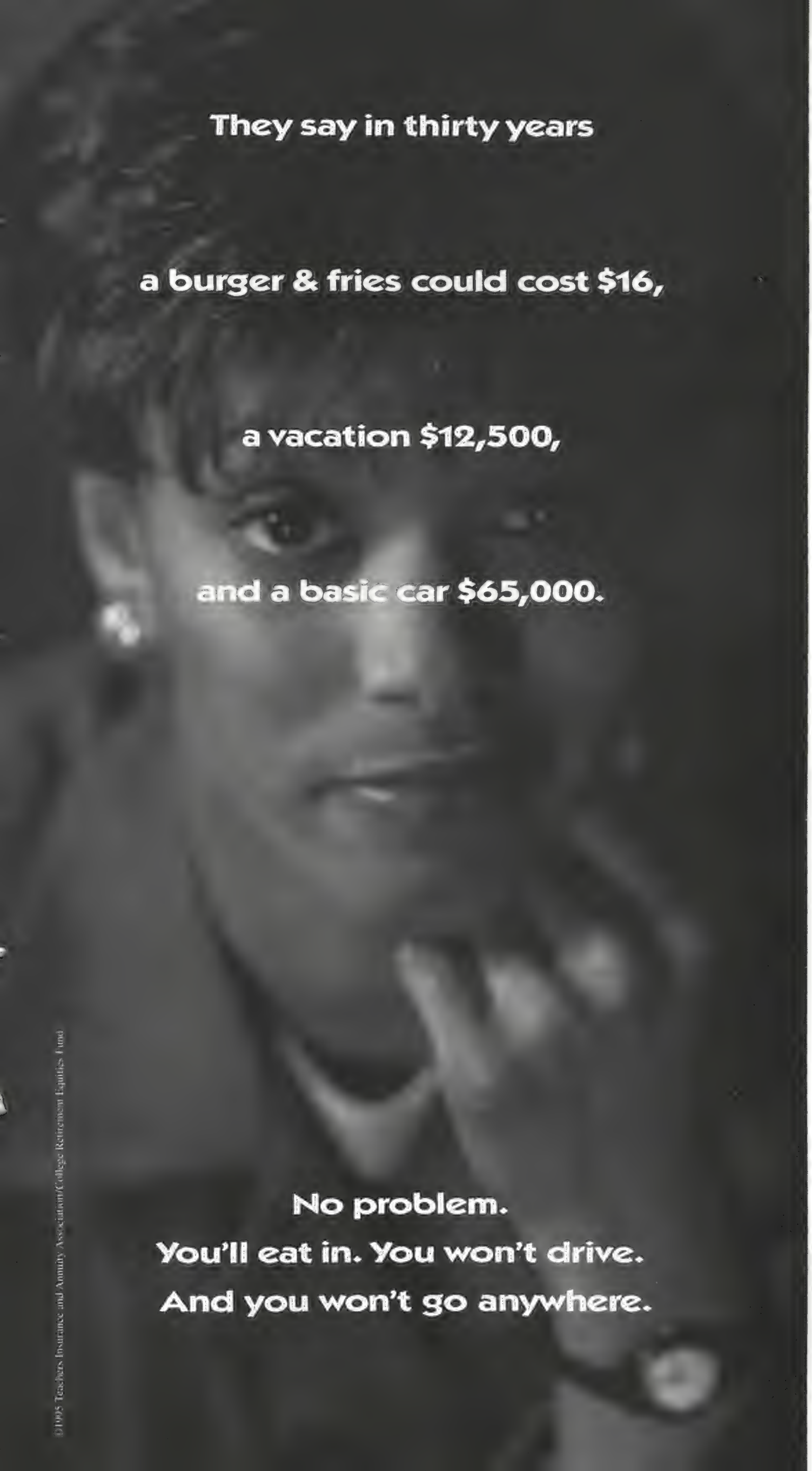
Mrs. Malaprop reducks

Author James J. Kilpatrick, whose authority on solipsisms *and* solecisms *remains under siege by the ghost of Mrs. Malaprop ("Mrs. Malaprop's mangled prose set a president," January 1995), sent us the following massage.* Ed.

Bring me sackcloth, bring me ashes,
Prop me up for forty lashes.
Grade me bottom on the curve,
Impose the penance I desurve.
There's no forgiving such a gaffe,
This word that spoiled a paragraffe.
My hand reached out for solecism,
And fell, alas, on solipsism!
Gadzooks, oh my, and sacré bleu!
And lots of mea culpa teu.
And yet, perhaps, I may explain
The goof that caused me so much pain.
My fault alone? May God forbid it!
'Twas Mrs. Malaprop who did it.
This ditsy, ghostly harridan,
Creature of Dick Sharridan,
Seized my pen—it sounds absurd—
And made it write the hateful wurd.
The moral to my tale of woe
Was writ in stone quite long ago:
Remember, scribes who know it all,
That after pride, there comes the fall.
Burma Shave.

Concurrently, this intraoffice memo reached the Editor's desk:
Dear Boss, The cosmic proportions of Mrs. Malaprop's revenge in the February issue (hoards/hordes, sheering/shearing, cyprus/cypress) gave us paws. Thought you should know, we are negotiating with Macaulay Culkin to star in our forthcoming film, *Homophone III.*
(Signed) *Copyeditors Anonymous*

Send mail for consideration in this column to Letters Editor, SMITHSONIAN Magazine, 900 Jefferson Drive, MRC 406, Washington, DC 20560, or transmit via e-mail to **simag.edmail@ic.si.edu**. Both posted mail and e-mail must include your full name, mailing address and telephone number.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BUTTON IN EAR

Keeping up with our freelancers in the field

By Jim Doherty

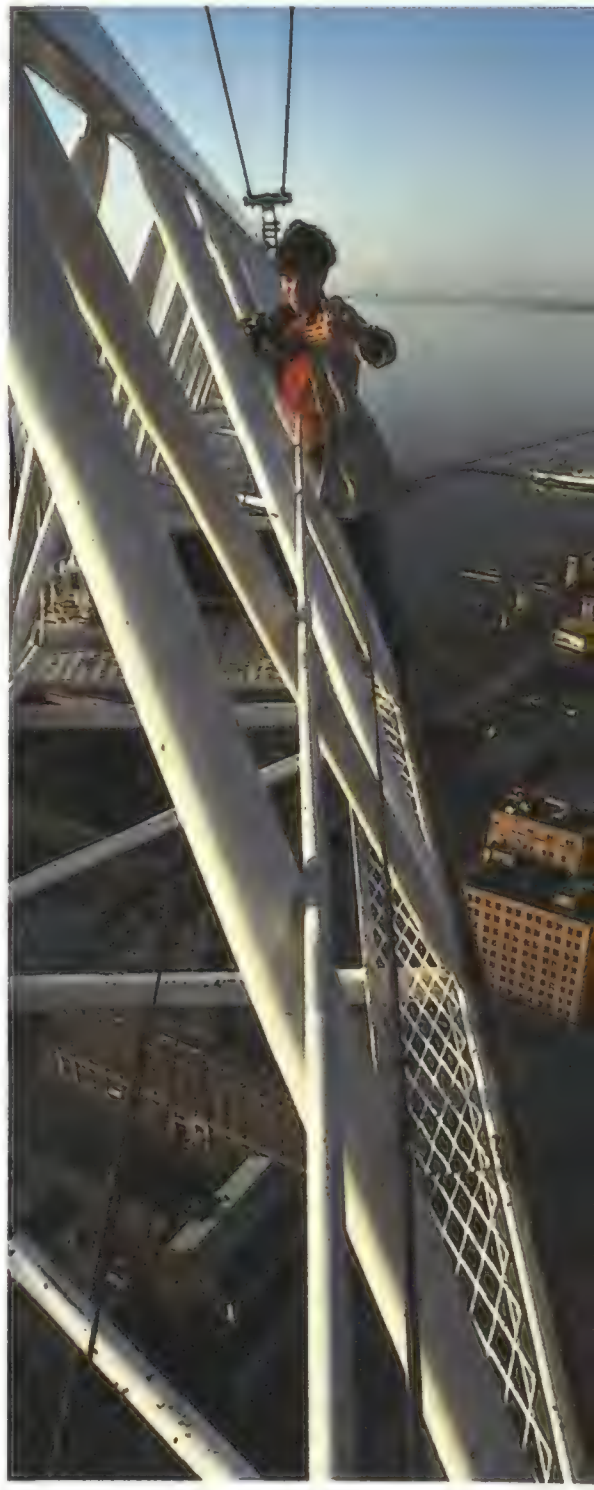
Since this magazine started sending writers and photographers all over the world back in 1970, they've had more adventures (and laughs) than most of us mere mortals can dream up in a lifetime

When writer Donald Dale Jackson and photographer Terrence Moore set out in 1985 to do a SMITHSONIAN story on cabooses, they arranged to ride in one that was attached to a Santa Fe freight train bound from Los Angeles to Barstow, California. Much of the trip was through unremarkable country, but at a certain point three of the train's crew members converged on the same side of the caboose and stared intently out the window. "Nudist camp ahead," one of the men explained. The train slowed down, but apparently all of the happy campers were under cover that day. The only unclad creature Jackson and Moore saw was a coyote.

In their never-ending quest for the naked truth, the freelancers who produce the bulk of the words and pictures that appear in this magazine seldom allow themselves to get sidetracked. Over the past quarter-century, they've traveled around the world, hobnobbed with fabulous characters and taken on more adventures than most of us mere mortals could dream up in a lifetime. Recently, setting envy aside, we asked a number of our longtime contributors to tell us about some of their most memorable experiences in the field, which, it turns out, they were happy to do.

Many of their stories resemble a remake of the movie *Planes, Trains and Automobiles.* Only add snowmobiles, mules, trucks, dilapidated buses and any other conveyances you can think of, and put them on some of the most harrowing thoroughfares known to Man. The road to the top of the Khyber Pass, for example.

Rob Schultheis, who wrote about the



Hanging on for dear life, Kay Chernush takes pictures atop a crane in Chicago.

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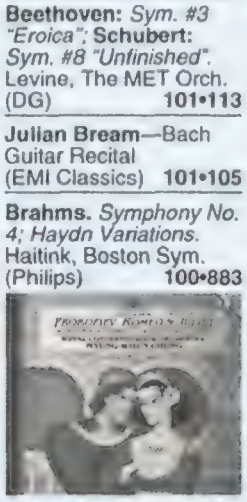

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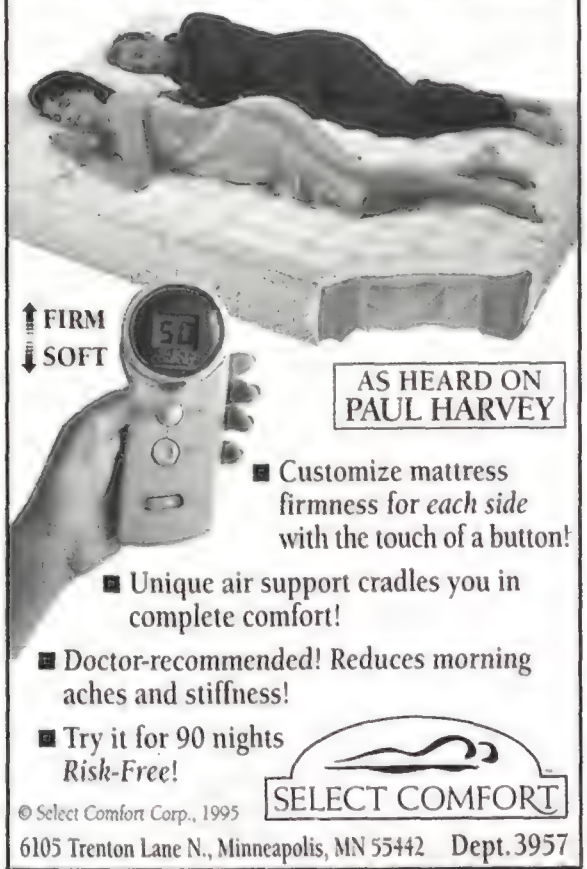

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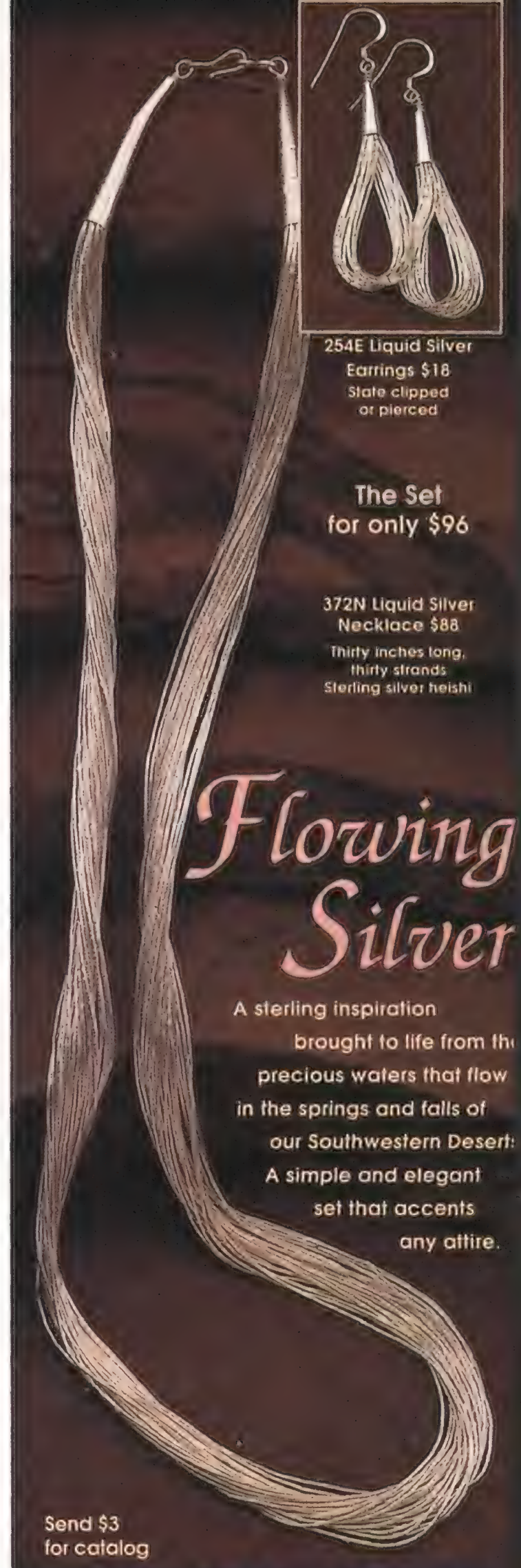
Pass in a 1988 story, made the trip one drizzly afternoon in an old jeep with several hulking (and not entirely sober) Afghan guerrillas. "We roared through villages, horn blaring, sending children, old men and animals racing for safety. We passed buses on the wrong side, two tires off the tarmac, six inches from hundred-foot dropoffs. We squealed around hairpin turns and squeezed between overloaded trucks like toothpaste squirting out of a tube."

Photographer Kay Chernush knows about the hazards of long-distance travel, having journeyed from England to Baghdad by Land Rover and truck in 1985 during the Iran-Iraq war. She had previously fallen into a Sri Lankan river while photographing gem miners and climbed a construction crane towering 700 feet over downtown Chicago. Doing the story for us on English truckers, Chernush was detained by police in Yugoslavia and Turkey (for taking pictures of bridges), slept in a refrigerated truck on top of 21 tons of candy bars and found herself, at journey's end, in the middle of a desert with, she recalls, "no water, no facilities and not even so much as a bush to hide behind."

Speaking of discomfort, let's not overlook poor Richard Howard. Aboard a fishing vessel to photograph our 1985 Georges Bank story, he remained so violently seasick for days that in desperation he finally begged the captain to find a way to get him off the boat—a helicopter, anything. "I even offered to pay for the return trip myself," Howard admits. The next day the seas calmed, and he was able to complete the assignment. Back ashore, however, he discovered that the "terra" was no longer "firma"; it took several days for him to regain his equilibrium.

When it comes to globe-trotting, Michael Freeman deserves a special award. After engineering a spectacular series of special-effects photographs for our stories on the beginning and end of the Universe, Freeman flew from London to Bangkok to start work on a piece about people who collect nests for bird's-nest soup. Taking a small boat across the Andaman Sea to a tiny island, he photographed collectors at work high up in a huge cave. Then he flew from Bangkok back to London, his home base, before going on to Washington, D.C. for a publicity event on his Universe pictures. From there Freeman flew to Borneo to seek out yet another

Text continues on page 24



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bird's-nest collectors' cave. After traveling across mountains in a jeep, he found it—"bigger than a cathedral's interior, with a 500-foot ceiling."

The best place to take his shot, Freeman decided, was standing in the cave entrance, knee-deep in tons of foul-smelling bird and bat droppings. He realized that the tingling sensation he felt on his bare legs as he worked was nothing to worry about—just the jostling of millions of cockroaches feeding on the surface of the guano.

Freeman felt a different kind of tingle one afternoon when he was in war-torn Cambodia for our 1990 story on Angkor Wat. As he pushed through high grass toward the ruins, a Cambodian guard ran past him and stooped to fiddle with something. "What was that?" Freeman asked. It was a booby trap, a mine attached to a wire that the Cambodians had set out to trip up the Khmer Rouge.

If we were handing out a prize in the "I couldn't believe my eyes" category, writer Jim Trefil and photographer Randall Hyman would have to share it. Hyman went to Iceland for our story on volcanoes. In the dark hours of early morning, he hitchhiked up to a remote eruption. As he began climbing toward it, he noticed in the eerie orange glow another person keeping pace on the ridge above him. "I never saw him again after I arrived at the eruption and never heard of another soul having hiked in there at that hour." According to Icelandic folktales, there are more ghosts than sheep on that lonely island.

Trefil was checking out story possibilities in Waxahachie, Texas, right after it had been chosen as the site for the late, lamented Superconducting Super Collider. Out of deference to local sensibilities, he was trying hard to resist stereotyping Texans. But when he visited a ranch, the foreman told him, "Wait here and I'll go turn on the waterfall." A minute later, Trefil saw him tugging on a wheel high atop a nearby limestone cliff, and soon a river started plunging down the cliff face. "Dammit," Trefil said, turning to his host. "How am I supposed to resist Texas stereotypes when you folks do stuff like this?"

Stereotypes aren't the only thing freelancers try to resist. Consider pets. Several years ago, we asked Enrico Ferorelli to take the pictures for a profile of the celebrated animal trainer Vicki Hearne. "She's an old friend and I cherish the opportunity to spend any time with her," says Ferorelli, who has worked on more than 15 stories for us since 1977, from expatriates in Rome to endangered animals in Belize to a spaghetti factory in Italy. "The only problem with that job was that Vicki had five dogs and I had none."

Ferorelli's kids had been asking him for a dog for a long time. "Seeing her living happily with five, I thought I could handle one. So now we have a beautiful wire-haired dachshund, but after two years we still have not managed to train him worth a damn."

Any freelance writer worth his salt wants to try his hand at whatever he's supposed to be writing about. This imparts a certain credibility to a story, but it can also lead to sensational embarrassment, as Richard Wolkomir knows full well. Auditing a course one day for a piece on a school for butlers, he had to carry a tray of cocktail glasses while balancing a tumbler on his head.

Poise! Presence! *Crash.*

Wolkomir's self-esteem sank even lower when, working on a story about hedge mazes in Britain, he managed to get hopelessly lost in a big one. Too proud to yell for help, he wandered around for what seemed like years until finally he blundered out.

Did someone say something about ineptitude? On a variety of demanding assignments over the years, Jon Krakauer was the very model of proficiency, ascending a 650-foot icicle in Alaska, operating a motorcycle full throttle during Bike Week in Daytona Beach, Florida, and circling the summit of Mount McKinley in a small plane on a rescue mission. But then he decided that, in order to write about surfing, he needed to know how to surf.

After renting a board, Krakauer paddled into the waves off Waikiki Beach in Hawaii. When he paddled back much later, battered and bleeding from numerous encounters with sand and reef, he had yet to stand upright on his board. Next day, after practicing for hours in his hotel room, he tried again. "It wasn't long," he reports, "before I caught a wave, stood up and rode that gnarly two-footer for four or five seconds before a rogue piece of chop pitched me into the drink." Thus at age 34 did our intrepid correspondent become a surfer. Cowabunga, dude.

When it comes to resourcefulness, Michael Parfit has few peers among the writers who work for us. He spent a month bobbing down the Mississippi River in a rubber boat, jumped out of a perfectly good airplane at 12,000 feet while working on a story about parachutes and made three trips to Antarctica. Then there was the time he and two companions had just taken off in his single-engine Cessna from a small airstrip in the Amazon when the engine began to act up. It didn't just sound funny, Parfit recalls. It went BANG! BANG! BANG! "As a professional journalist, I have an alert and analytical mind. I soon guessed that something was wrong. I think Sue and Alex came to the same conclusion."

Back at the airstrip, Parfit discovered that an exhaust manifold had broken. If he flew the plane like that for long, there would be a fire. As it happened, a missionary who lived in a nearby village liked prunes, which came packed in a very strong can. "A second missionary, who was a mechanic, helped me hack an empty can apart. We wrapped it around the broken pipe and cinched it down with two clamps borrowed from another part of the plane. It took us 2½ hours' flying over solid jungle to reach an airport. For that whole time, the prune can hung in there. So did Sue and Alex, but I was a wreck."

Thrills, chills, spills—our freelancers have done it all. But what, you may be wondering, about romance? Chiori Santiago found herself the object of affection while researching her 1993 story on the tango in passionate Buenos Aires. After boarding a bus, she endured an interminable ride. Other passengers came and went until she was the only one left. Finally the youthful driver pulled over at her stop, invited her to visit his home and cheerily proposed marriage. "He was unfazed when I declined," she says. "He insisted I write down his phone number in case I changed my mind."

When William MacLeish embarked on the cruise aboard a research vessel that produced his first article for us, he too had just fallen in love. "I had to spend a month thousands of miles from her, thinking of her day after day." But our man coped with his lovesickness better than a fellow sufferer on another long oceanographic cruise, who ended up jumping overboard. "He told his rescuers that he had spotted his wife," MacLeish says. "She was, he claimed, paddling by in a blue canoe."

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Twenty-five years ago this month the first issue of SMITHSONIAN, with a pair of amorous elephants on the cover, reached its 160,000 brand-new readers. The creation of S. Dillon Ripley, then Secretary of the Smithsonian Institution, and Edward K. Thompson, former managing editor of *Life*, the new magazine was to engage those subject areas in which the Institution itself had an interest—the sciences, the arts, the humanities, and culture both uppercase and lowercase.

For 1970—a time when general-interest magazines already had expired or were about to—it was a daring idea. Could a new magazine survive without stories on the fad of the month or malfeasance in high places or the latest cure for the tragedy of zits? What future could there be for a magazine whose choices for celebrity profiles might include, say, Rudyard Kipling or the wizards who schedule the 1,107 games for the National Basketball Association?

A lot of people didn't think it had a prayer. Just before the first issue was to go to press, the *Washington Post* reported that the executive committee of the Smithsonian's Board of Regents had recommended suspending plans for the magazine.

The *Post* was wrong, but the ride was pretty rough at the beginning. The advertising sales staff operated out of a public phone booth for a short time, the editors scuttled about like troglodytes in dark recesses of the venerable Arts and Industries Building (a venue that they then shared with the *Spirit of St. Louis*, the Wright Flyer and the occasional small rodent), and the newborn circulation department sent a solicitation to NBC News with the salutation, "Dear Mr. News"—a gaffe that anchorman John Chancellor generously shared with his many television viewers.

Although the editors still work in the Arts and Industries Building—and still share their offices with the occasional small rodent—things are a little different today. With a circulation of 2.1 million, SMITHSONIAN is now among the largest monthly magazines in the United States, and the significant revenue it generates helps to support its parent institution's research and educational programs. Our readers, bless you, are steadfast. You share your ideas and experiences, suggest stories, admonish us for our sins (the response to a cover photograph of downtown Pittsburgh that we inadvertently flopped, left to right, is legendary in our offices) but usually forgive us. You offer us advice, mostly sound but sometimes cryptic. One unforgettable letter read in its entirety: "Dear Editor: Support the Law of Gravity."

If the ride is a little more comfortable now, it's still wide-ranging and, we hope, leads to unexpected destinations. To produce the eclectic—some might say idiosyncratic—mix that characterizes SMITHSONIAN, our writers and photographers (among the best in the business) have taken on subjects from allergies to alligators, Monet to mountain bikes, the Supreme Court to Superman, Roquefort to roses, Hadrian's Wall to the fabled walls of Troy. We have explored the far frontiers of science, the long sweep of history, the wonders of the natural world, the heights, and sometimes the depths, of human endeavor. We've tried to be serious without being solemn, relevant without being trendy, and we've tried to have a little fun along the way.

In planning this Silver Anniversary issue, we decided to look at things that are important, or interesting, that you are unlikely to see on the nightly news or the supermarket checkout stand. Around the office we've referred to our theme as "The America Nobody Knows," although clearly some of you are quite familiar with these subjects, indeed may be admirably devoted to them.

And so in the pages that follow, after revisiting some of the stories we've told over the past 25 years to see what has changed—and much has—we will explore the site of a geological cataclysm that shaped the Pacific Northwest, walk the astonishing streets of a wrecked urban neighborhood that has been reborn, join volunteers who are seeking out a hidden treasure of outdoor sculptures, drop in on a college that's like no other, browse in some museums we figure you've never heard of, examine the world inside a cubic foot of air, and trek into the wild with some hardy souls who are trying to record the continent's natural sounds before those sounds are overwhelmed by the racket of modern civilization.

Come along for the ride.

The Editors

Smithsonian 25 years

Over the past quarter-century, the magazine has published more than 2,000 major articles. Starting below is a birthday sampler that revisits and updates one story from each year, adding here and there a few brief reflections on just what it all means.

1970 From elephants to red wolves to bald eagles, the trials and triumphs of endangered species

It was a sure sign of things to come when our first issue took up the fate of the Ceylon elephant, whose numbers in the wild had by then fallen from 40,000 to just 3,000. During the next two decades, in story after story, the magazine reported on ways and means of saving endangered habitats as well as species.

In assessing the effects of the Endangered Species Act, which first became law in 1973, the public has been distracted by confrontations involving the likes of the snail darter. But over the years remarkable progress has been made. The California condor has a chance to escape extinction. So has the red wolf, whose wild population was extinct until captive breeding and release into the wild began. The eastern brown pelican and the American alligator have largely come back. International efforts seem to have saved the California gray whale. Outlawing the marketing of ivory has helped Africa's elephants hang on. Our national symbol, the bald eagle, has been removed from the endangered list, and gray wolves are once again on the prowl in the West.

It's sometimes said that the Endangered Species Act, which comes up for reauthorization by Congress this year, is an attempt to outlaw extinction. In fact, it's an attempt to mitigate the depredations of humans, particularly the destruction of critical habitats, which is still going on at an unsettling rate.

The most spectacular save yet involves the American peregrine falcon. Devastated by DDT and habitat loss, peregrines had gone extinct in the East, and in the West their numbers were down by 90 percent. Today, through captive breeding, the bird has been returned to every state in its original range.

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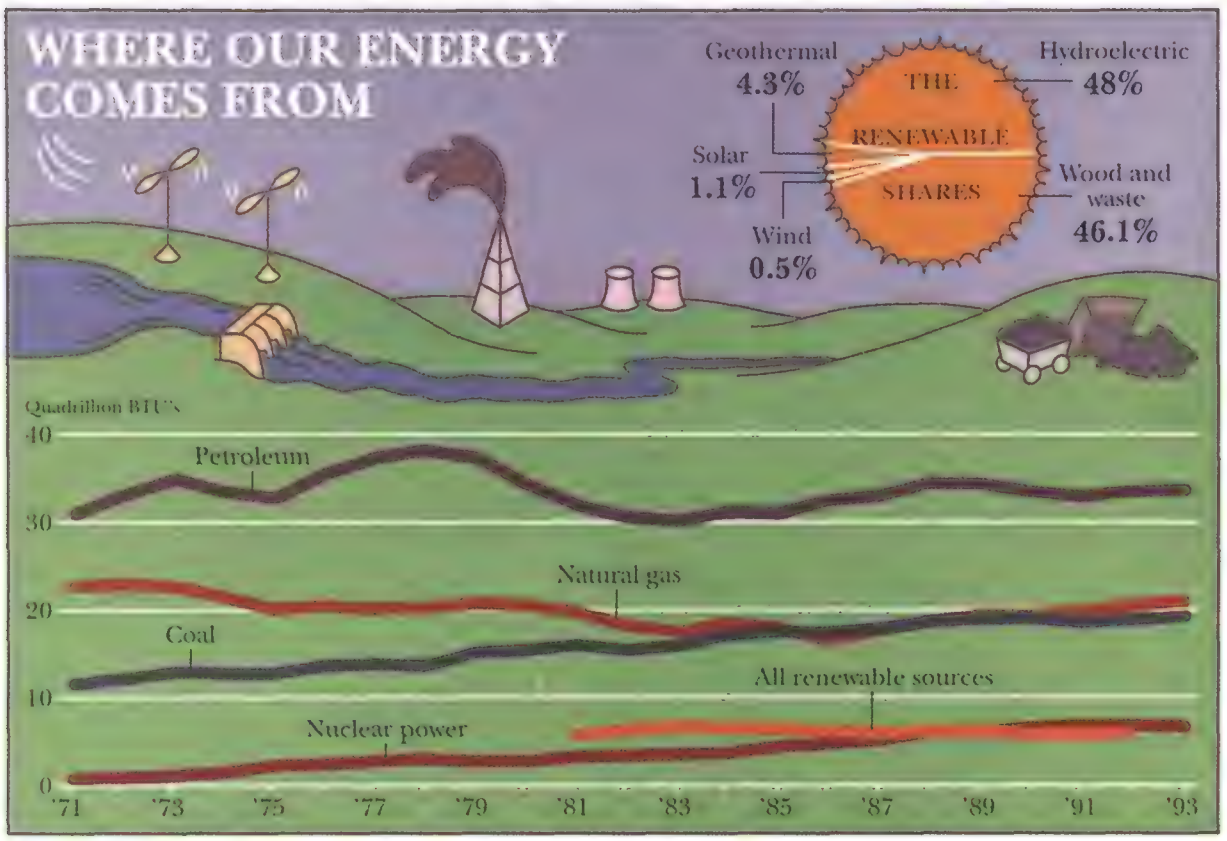
1971 Solar energy: after a dazzling debut, its prospects don't seem so sunny



Like everyone else, SMITHSONIAN's editors had high hopes for solar in 1971, but today, nonrenewable sources—coal, natural gas, oil, nuclear—still account for more than 90 percent of our energy. Hydroelectric and wood produce less than 6 percent. Solar and wind? Only 0.2 percent. The problem is cost: solar is twice as expensive as the average energy source in the USA.

1972 The King Tut show showed the way

In London, huge crowds waited in long lines and even camped out overnight to get tickets. They were waiting for "Treasures of Tutankhamun," a spectacular display of gleaming animals, statues and rich jewels that included this amazing gold funerary mask of the boy king, who died in 1352 B.C. Tutankhamun fever invaded America with a King Tut show that toured the country later in the 1970s. It expanded the museumgoing public and set the style for such exhibitions as "The Treasure Houses of Britain" (1985) and "Circa 1492" (1991). Of late, with costs up and funding down, blockbuster shows may be going out of fashion, but museum flair and care live on.

1973 Sickle cell anemia: no cure, but progress in treatment

It was two decades ago that sickle cell anemia began to get serious national attention, in part because of the man featured in our story, Dr. Rudolph Ellsworth Jackson. An African-American specialist in blood research, he had just been named director of a new National Institutes of Health task force aimed at its prevention and cure.

Sickle cell is a blood disease, genetically transmitted. It mainly afflicts black people, and is especially painful and dangerous to very young children. About 10 percent of black Americans carry the trait but do not suffer from the disease. If you have it, some of your hemoglobin, which carries oxygen to the body, sporadically starts to curl and cling together, clogging blood vessels and reducing the flow of blood to the tissues. Some sickle cell children suffer strokes. And they are also at risk from meningitis and pneumonia. In 1973, and for years afterward, 30 percent of all sickle cell babies died before the age of 5. Only 16 percent of them lived beyond age 30.

By now screening of newborns for sickle cell is standard in 43 states, so parents who haven't been tested themselves know what's in store for their babies. Much can be done. Doctors, like Virgil McKie of the Medical College of Georgia (above), can now reduce the risk of multiple strokes by repeated blood transfusions. Sickle cell babies are also given regular doses of penicillin, starting in infancy and continuing until they pass the age, generally around 5, when sudden infections are most likely to strike. Recent studies show that drugs that modify the hemoglobin, such as hydroxyurea, can help prevent the pains that bedevil sickle cell patients. Hydroxyurea, especially, seems able to cut down dramatically on acute chest syndrome, one of the most deadly complications of the disease. There are still 72,000 people with sickle cell in the United States. But more than 85 percent survive to reach age 20, and half make it beyond 50. Says Dr. Samuel Charache, the principal investigator in recent hydroxyurea tests: "When I went to medical school in 1955, nobody lived beyond 20."

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DeVille photographed overlooking The Nature Conservancy's Cosumnes River preserve. Cadillac is pleased to be a corporate sponsor of this organization dedicated to protecting the diversity of life on Earth.

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1974 For years recycling was an idea whose time was about to come; now it has

"No Deposit. No Return," read the epitaph on a mock tombstone. "Died in Oregon on September 30, 1972. May it rust in peace." Oregon had just passed the country's first bottle-and-can bill. Other states seemed poised to follow. By 1974, when we did our story, the Middle East oil crisis had us worrying about energy as well as waste. America was producing 125 million tons of trash a year, 7 percent of it throwaway bottles and cans. The EPA estimated the energy consumed in making those cans and bottles would heat 5 percent of U.S. households for a year.

In 1974, however, only a million citizens were returning containers. The problem was the price of collecting, sorting and recycling trash, which was overwhelming, as compared with $3 per ton for simply shoving it all into a landfill. By the '80s, though, it turned out that landfills leak; they need expensive linings, and pumps to extract leachate. Recycling at least offered a hope of future income from the resale of paper, glass, plastic and tin. Some states started requiring that a percentage of paper, glass or cans be made from recycled material.

The process does not pay for itself yet, but in many cities the resale price of recycled newspapers has lately soared from $3 to almost $30 per ton; used plastic containers go for about a nickel a pound. More than 150 million Americans now sort their trash for glass and plastic, metal and paper; that's more than vote.

1975 Rufino Tamayo's legacy of art

As an aspiring young painter from the provincial town of Oaxaca, Mexico's Rufino Tamayo found it hard to learn what was going on elsewhere in the art world. Eventually he migrated to New York and Paris, fashioning an eclectic style that won him considerable fame and fortune. His semi-abstract, sensuous style was shaped by his heritage—by the artistic traditions, vibrant colors and rhythms of Mexico—and by modern art. He was a passionate collector as well. By 1975 he had created a five-room museum in Oaxaca devoted to pre-Hispanic Mexican art.

But his dream was to start another museum, like the one he didn't have when young, full of modern art from all over the world. In 1981, ten years before he died, Rufino Tamayo's Museum of Contemporary International Art opened in Mexico City. There, in addition to major traveling exhibitions, visitors can see his fine collection of works by Picasso (above), Mark Rothko, Fernand Léger, David Smith and many others.

1976 The U.S. Army Corps of Engineers: much to do just undoing what's been done

Will the real Corps please stand up?

That was the gist of Don Moser's two-part report on the Army Corps of Engineers, one of the largest construction outfits in the world. On the one hand, the agency that conservationists called "Public Enemy Number One" was still hard at work dredging, draining and damming, and building such Congressionally mandated projects as the huge Tennessee-Tombigbee Waterway in Mississippi. On the other hand, it was trying out a new role as nature's watchdog, moving to protect such valuable resources as a 2,000-acre mangrove swamp in Florida.

By now it has become clear that the Corps is more likely to be a restorer than a developer of fragile lands. This is partly because Congress' old pork barrel is empty, partly because of environmental sensitivities and partly because a number of Corps projects have turned out to be financial as well as ecological boondoggles.

Much of the Corps' present work involves atoning for past damage, including that done in the Florida Everglades. The Corps began draining the "Glades" in the 1950s with 1,000 miles of canals. That supplied water to booming South Florida and created cropland for sugarcane growers, but it also wiped out bird populations and contributed to the destruction of Florida Bay. Now the Corps is proposing an elaborate "replumbing" at a cost of as much as $2.5 billion. It has already started moving dirt to return the Kissimmee River to its natural state. It's up to Congress to authorize the rest of the Engineers' plans. The real Corps is standing up, and environmentalists are applauding.

As I See It #7 in a series
Joyce Tenneson
'Renaissance Redux'
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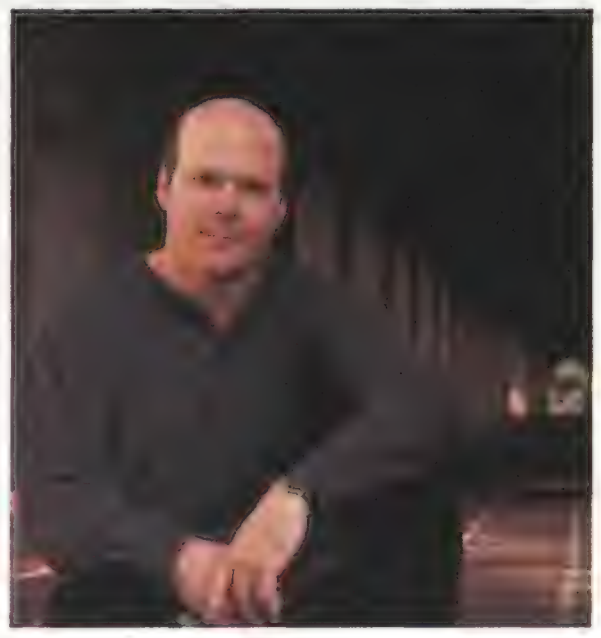
1977 Those math whiz kids have fulfilled their promise—in a variety of ways

Colin Camerer, at age 17 (left), was part of a 1977 report by writer David Nevin on seven boys who went to college under a super head-start program for math geniuses, created and run by Johns Hopkins psychology professor Julian C. Stanley.

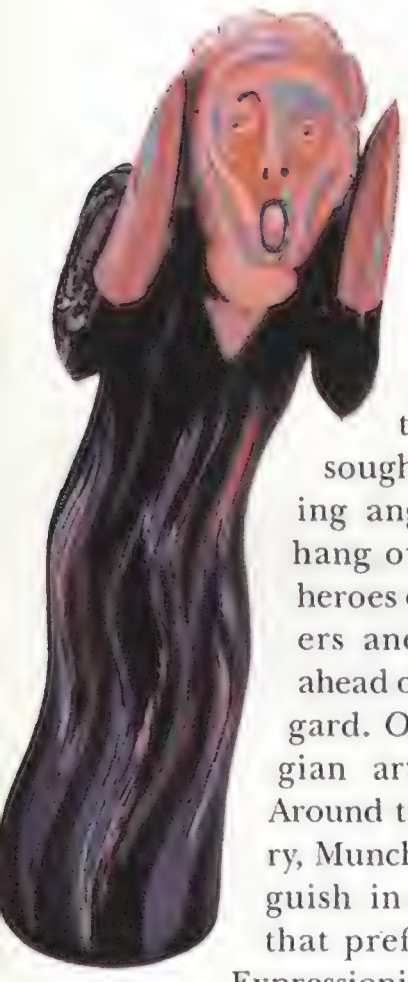


Public schools have not been designed for the supremely bright, who often come to grief from boredom. After testing thousands of them, Stanley decided to see how a handful would do making an early jump to college, as young as 11 or 12.

When Nevin first caught up with his subjects, they had just graduated from college, at ages ranging from 15 to 19. Six were bound, on scholarships, for PhD programs in such fields as mathematics and computer science at places like Princeton and Stanford. Nevin found them exhilarated by their challenging schoolwork and the prospect of well-adjusted and successful lives. When he checked up on their progress this year, they were still grateful for Stanley's program.

All but two got a PhD. Most taught at the college level. One, Camerer, has had a truly meteoric career in academe. At 34 (above) he is a full professor at Cal Tech with an endowed chair in economics. He has already founded and built up a record-producing company, and thinks he may buy some racehorses next. One whiz kid is married, has a child and teaches. One is deep into chess and bridge. One says martial arts interest him as much as his career in scientific research. One, a baseball nut, happily splits his time between classified research and radio commentary for the Baltimore Orioles.

Stanley still presides over his program, which has spread to three other universities. Together they test 175,000 kids a year and invite 10,000 to take special accelerated summer courses.



1978 How a painter's angst became a pop-cult icon

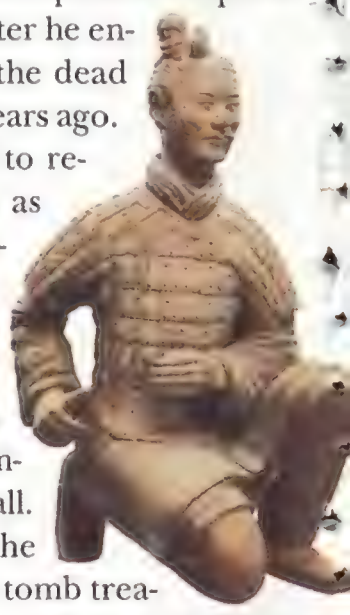
With a little help from watered-down Freud and the terror of two world wars, the 20th century has sought to ease its prevailing angst by letting it all hang out. It has also made heroes of 19th-century painters and writers who were ahead of their time in this regard. One such was Norwegian artist Edvard Munch. Around the turn of the century, Munch externalized his anguish in powerful paintings that prefigured the German Expressionists. Our story marked a major showing of his work in the United States and closed with a reproduction of his painting *The Scream*.

This scary, doleful image has since become a pop-cult icon, adorning shopping bags, posters and T-shirts around the world. The publicity perhaps inspired the young Norwegians whose theft of *The Scream* from the National Gallery in Oslo last year was filmed by the museum's security camera. Anti-abortion activists claimed they'd return the work if Norway's state television would air *The Silent Scream*, an anti-abortion film. In fact, they had nothing to do with the theft. Ultimately, the painting was recovered undamaged.

Recently, inflatable versions of *The Scream* have been selling at a rate of 100,000 a year—the desktop model (left) for $9. Why the image has become a fad is a puzzle. Perhaps it's a kind of pop primal scream therapy, or maybe just a way to get through a bad hair day.

1979 An emperor's terra-cotta army

Sixteen years ago SMITHSONIAN printed pictures of an extraordinary find. Discovered by farmers near the city of Xi'an in Central China, it was an entire army, some 7,000 men sculptured in terra-cotta. These larger-than-life figures—complete with spear-carrying infantry, archers, horses and chariots—had been put there to protect Emperor Qin Shihuangdi after he entered the land of the dead more than 2,200 years ago.



Historians tend to regard the emperor as a tyrant. He conquered all of China, abolished feudal privileges, once had 460 scholars buried alive and completed the Great Wall.

A sampling of the soldiers and other tomb treasures is on tour and will be in Honolulu through June 18. Some 26 million Chinese, and more than 2 million foreigners, have journeyed to Xi'an to see the museum that the Chinese government has set up. The terra-cotta army, in fact, is only part of a vast, as yet largely unexplored complex said to have taken 720,000 workers 37 years to complete. Xi'an is one of the most monumental archaeological discoveries of all time.

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1980 Animal rights—from the embarrassment of fur-wearing ladies to 'save the chimps'

In their own way, the indignant raccoon and uneasy dowager stand for one of the most remarkable changes of heart that the century has seen. Societies to prevent cruelty to horses and dogs have long existed. It was not until the early 1980s, however, that anybody spoke of *rights*, and that large-scale popular campaigns on behalf of animals began. Some of the most spectacular ("I'd rather go naked than wear fur") as well as successful attacks were launched at pain needlessly inflicted—the trapping of animals for their fur and the blinding of rabbits to test eye shadow. But as our report pointed out, the new animal-rights movement had also begun to assail "factory" farming and modern science for the ghastly conditions that billions of chickens, calves and pigs endure before being slaughtered, as well as the often brutal handling of 20 million creatures used in scientific laboratories each year.

Cover drawing by Peter de Sève
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Since 1980 a number of cosmetic companies have abandoned rabbit tests. Detroit no longer uses dogs to measure car safety. Veal consumption has dropped. So, to some extent, have fur coat sales. The United States now does a big business in salad bars, humane mousetraps and free-range chickens.

Much of the current concern is rooted in the study of animal behavior. Books by ethologists Michael W. Fox, Donald Griffin and others have made it clear that animals, far from being mere robots of behavioral reflex as science long held, are sentient beings whose ability to think and feel cry out for human understanding and care.

1981 Lloyd's of London: entangled in the laws of probability

When we took a bemused look at the venerable Lloyd's of London in 1981, it did not have its fancy new headquarters (left) but was still a likely entry in anybody's "There'll Always Be an England" contest. Today Lloyd's is shaking from $10 billion in losses as well as allegations of mismanagement.

A collection of individual underwriting groups known as "syndicates," Lloyd's is famous for its willingness to insure almost anything (at a price), including imponderable assets like Marlene Dietrich's legs. By tradition, syndicate managers are renowned for shrewdly assessing risk and intimately knowing the character and track records of whatever they insure. That had let Lloyd's provide "names" (elite investors, including, for a time, Supreme Court Justice Stephen Breyer) with large profits year after year. "Names" become underwriters in the insurance business, but on unusual terms. They must pledge everything they own to make good their syndicates' debts if losses outrun profits.

From 1988 to 1991 Lloyd's was hit with astronomical insurance payments from an apocalyptic succession of hurricanes (Hugo and Andrew), floods, earthquakes, and airline and oil disasters. Some syndicates had also reinsured American corporations when U.S. juries were awarding astounding sums for harm caused by asbestos. Some "names" lost everything. A few committed suicide. Most took to the law. Reforms are under way, but Lloyd's of London will never be quite the same.

1982 A sea change on Daufuskie Island

When writer Alex Haley visited this small South Carolina island, people there remembered a time when several hundred residents, mostly black, spoke Gullah, farmed some, roamed wherever they wanted, and lived off the land and sea. But Daufuskie was changing, and today developers own 70 percent of it. Three major resort "plantations" have come, with fancy inns, golf courses and beachfront homes. Two more are on the way. Islanders, who have been priced out, mourn the old ways. But they are also getting used to new job opportunities, regular ferry service, a fire chief and 911 service, a stretch of paved road and the promise of a new school. Some of this is the result of work by the island's community improvement association and (below) civic leader Ervin Simmons, local historian Billie Burn and developer Steve Kiser.

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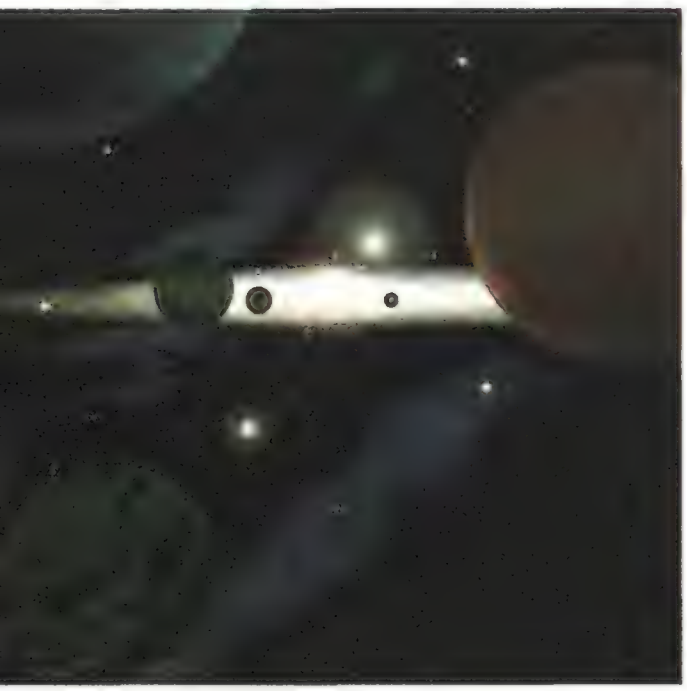
1983 The Universe: an open or shut case?

Our two-part series on the life of the Universe from the Big Bang to the distant future addressed one of the central questions of astrophysics. For decades scientists have been confounded by the fact that the observable Universe does not seem to have enough mass to create the gravity needed to bind great structures like galaxies. Thus out in the void there must be some mysterious stuff, "Dark Matter," that glues the cosmos together. Scientists have proposed as candidates a number of subatomic particles that exist only in theory. In January a Los Alamos-led team of researchers claimed that their experiments, conducted in 180 tons of baby oil, provide preliminary evidence that particles called neutrinos—which are both real and unimaginably numerous but long thought to be massless—may have a slight amount of mass after all.



Many physicists dispute the claims, and clearly the last word is far from in on Dark Matter and on the question of whether the Universe is "open" or "closed." Without sufficient mass, cosmologists theorize, the Universe will continue to expand forever. But given a certain amount of mass, all of the matter in the Universe may ultimately collapse, in a "Big Crunch," back into a single point, then perhaps explode in another Big Bang—followed, presumably, by a future race of scientists trying to figure it all out.

1984 Antarctica: setting aside sovereignty in favor of the claims of science

Antarctica is almost as big as the United States and Mexico together, much of it covered with ice from one to three miles deep. Along its shores there are seven kinds of penguins, four kinds of seals and billions of tiny shrimp called krill. Inland, where the mean yearly temperature is minus 70 degrees Fahrenheit, not much survives except lichens. In winter (late February through September) the human population has now climbed to more than 1,000, mostly support staff and some scientists. In summer it exceeds 4,000 (a lot more scientists) plus many ships full of tourists who get to photograph the penguins.

Since the International Geophysical Year in 1957-58, all the nations with a presence there have operated largely on the basis of scientific cooperation. But seven countries (Australia, Argentina, Chile, France, Great Britain, New Zealand and Norway) still lay claim to slices of Antarctica. When writer Michael Parfit spent the summer of 1983-84 there, he found researchers busy but very worried. Disputes over resources were heating up. In 1991, however, representatives of the 26 voting nations in the Antarctic Treaty system agreed that Antarctica must remain protected and free from mining for 50 years from the date of ratification. Meanwhile scientists who are studying the ozone hole have concluded that CFCs are the major cause. Among other things researchers have uncovered are the fossil remains of a new carnivorous dinosaur with a crest that resembles Elvis' hairstyle. The National Science Foundation is now making plans to reconstruct the research station at the South Pole. Cost projections range up to $200 million.

1985 New York's Garment District: still undergoing costly alterations

After writer James Traub looked at the Garment District a decade ago, he reported that its "very future seems open to question." The legendary stretch along Manhattan's Seventh Avenue was still designing, making and marketing $12 billion worth of women's clothes a year. It was still a place of old-fashioned immigrant entrepreneurs, skilled sewers, fine cutters and agile "pushboys" who trundled racks of dresses. But big, efficient companies like Liz Claiborne were squeezing out littler guys, and retailers were discounting hugely—shrinking the manufacturers' profits and forcing many companies to shut down. Today profound changes continue to shake Seventh Avenue. Foreign imports are up, many department stores have gone under, and women are buying more selectively, often from off-price stores or discount malls. More and more sewing and cutting is being done by cheap labor abroad, but the cruelest irony is the news that hundreds of sweatshops are once again flourishing in New York and other U.S. cities, employing mostly illegal immigrants, who are willing to suffer low pay and long hours.

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1986 Caboose thoughts: back on track?

When we checked up on them in 1986, some 9,000 faithful cabooses were still on the job, serving as comfy bunkhouses and command centers for conductors and brakemen all over the country. The sad news is that now only about 3,500 cabooses are left. They are being replaced by computerized devices that can monitor such things as hotboxes and air-brake pressure.

Little Red Caboose fans need not despair. There is now a big market in ex-cabooses, which sell at anywhere from $3,000 to $7,000. What happens then is the stuff of children's books. Picture, if you will, Mopey, a glum but worthy old caboose marked for oblivion. Enter a friendly caboose broker, and Mopey finds himself headed for a new job—maybe as a cutesy art gallery, a small-town library or a local museum. Highfliers sometimes really hit the big time, catching on as a playroom for a McDonald's. Thirty-seven Mopeys now serve collectively as the Red Caboose Motel in Strasburg, Pennsylvania. The real Valhalla for Mopeys, though, is something called the Cockaboose Railroad, dreamed up by steel man Ed Robinson who, in 1990, bought more than 20 cabooses and lined them up outside the football stadium in Columbia, South Carolina, where the state university Gamecocks play. Painted red and richly refurbished with all the comforts of home, the old cabooses are sitting pretty as sites for lavish tailgate parties. Heck—like their owners, they can even watch the games on closed-circuit TV.

1987 The works aren't enough; Oxfordians want a life, too, and hope it isn't Will's

Four centuries after his first dramas were presented, William Shakespeare remains the most admired and most performed playwright in the world. But about the man personally, very little is known. No one even knows what he really looked like—though the images at right represent a recent attempt to show that one of his portraits was really a likeness of Queen Elizabeth I.

The shortage of facts has encouraged claims that someone else wrote the plays—perhaps Francis Bacon, even Queen Elizabeth I herself. The Shakespeare of choice, lately, has been Edward de Vere, the Earl of Oxford, an Elizabethan courtier-poet-soldier.

In 1987 we examined the claims of Charleton Ogburn, the foremost Oxfordian, including a claim that Oxford paid the Stratford "Shakespeare" to front for him, since playwriting could be politically hazardous in Elizabeth's court. Ogburn provocatively explores parallels between Oxford's personal life and travels (Padua, Venice and Verona) with settings and specific incidents in the plays. Anti-Oxfordians wryly note that Oxford died in 1604—when at least 11 of Shakespeare's plays had yet to be written. So the debate continues. In 1993 a scholar found that Oxford's Bible had a number of marked passages that Shakespeare used in the plays—but it proved a false alarm. Oxford, it appeared, had acquired the Bible with the notations already in it. One Oxfordian argument is that a bumpkin like Shakespeare couldn't have written so often and accurately about kings and courts, what the Bard's Henry V calls "the tide of pomp that beats upon the high shore of this world." But whoever Shakespeare was, he was a great genius of the poetic imagination, who could make a hell of heaven or a heaven of hell if he had a mind to.

1988 The mystery of Oak Island, Nova Scotia: Yo! Ho! Ho! and a hole full of debt

Robert Louis Stevenson himself could hardly imagine Oak Island, site of the most intensive and longest treasure hunt in history. People started digging there for pirate gold during the Presidency of George Washington. But in 200 years nobody has found so much as one doubloon. What has been found, as our story related, is a system of tunnels and a deep pit filled in with dirt and oak platforms at regular intervals, which has yielded some materials that date back to circa 1575.

Today a high-tech exploration team, the Triton Alliance, still has plans to dig the most sophisticated hole yet—at an estimated cost of $10 million.

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1989 For babes named Ruth, World War II diamonds were a girl's best friend

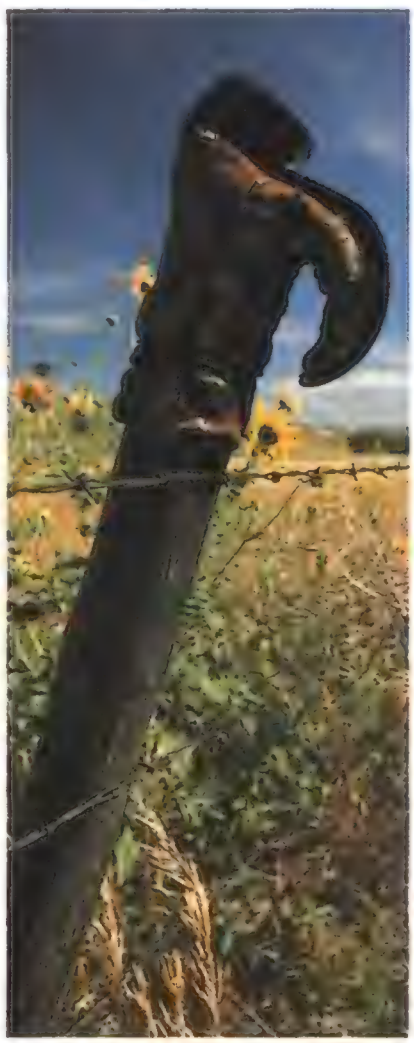
The All-American Girls Professional Baseball League began in 1943, when it looked as if the major leagues would be shut down. Crowds often came to scoff but stayed to root for skilled teams like the Racine (Wisconsin) Belles and the Rockford (Illinois) Peaches.

After our story on the League, director Penny Marshall got to work on what became her 1992 hit movie, *A League of Their Own*, a rollicking epic about the first season of the Peaches. Framed by a sequence showing some of the original players, now gracefully gray, at the Baseball Hall of Fame in Cooperstown, New York, the film was a splendid affair. Among other things, it proved that Madonna could act and cover center field, and that Geena Davis (left), as a rangy kid just off the farm, could spit convincingly, play catcher, snag a hardball bare-handed and virtually manage the team as well.

The next year former Atlanta Braves executive Bob Hope teamed up with the Coors beer people to launch the Colorado Silver Bullets, a women's pro baseball team. In 1994 they played 44 all-male minor league and college teams (W 6, L 38). The crowds were great and a 50-game season is planned this year. Some 20 of the games will be televised.

1990 In Arthur County, Nebraska, things are looking up

At the time we profiled Arthur County, Nebraska, in the census year of 1990, it was home to only 462 people. It could boast one town, also called Arthur (pop. 115), and three one-room rural schools (plus two in town). But no railroad, no Interstate highway, no rivers or streams, no traffic signals, no lawyer or psychiatrist, no fax machine, drugstore, motel, country club or hamburger franchise. Also no jail.



The people—mostly small cattle ranchers—were at once old-fashioned neighborly and frontier tough, with high-achieving kids (most graduates of the county's tiny schools go on to college). But with the population at an all-time low, and the average age at an all-time high, Arthur County's existence seemed shaky. In the past 50 years or so, the stampede to the cities has sadly turned thousands of other prairie communities into ghost towns.

Happily, in the intervening years nobody has foreclosed on a ranch in Arthur County. Together with a fax machine and cable TV hookups, a new motel has come to town and is pretty much filled in spring and summer by motorists passing through and road workers improving a local highway. A few younger couples, figuring that the area is a peaceful place to raise children, have moved in. Thelma Mercier, who grew up in Arthur but moved away like many other young people, has come home, restored a vacant house and opened an antique store to draw tourists. Population in town is up (to 128) and so is the number of high school students (from 20 to 35). The six-man football team went 8 and 0 last fall and went on to win the state championship in its division.

1991 'Flocks of the Valley' win big

The fearsome wool-bearer below looks a bit like a Klingon nightmare, but hundreds of its fellow Churro sheep ended up in a very real range war. The animals were among those owned by members of Ganados del Valle, a New Mexico cooperative of Hispanic sheep raisers and artisans who combine folk skills with modern marketing to make a living off the land. Desperate for high-pasture grazing, Ganados drove its flocks into a state wildlife area. After a considerable ruckus, the sheep were removed. Finding summer pasture is still a problem, but thanks to a generous gift and a recent court ruling, it looks like Ganados will be getting the help it needs to start acquiring land of its own.

If anything can untangle Boccanegra, English subtitles can.

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1992 Mountain lions, and people, at risk

As mountain lion attacks increased in the western United States and Canada, John Seidensticker, a celebrated expert on big cats and curator of mammals at the National Zoo, set out to discover where and why—and what could be done about them. Since 1992 four people have been killed, nine others injured. Not surprisingly, some attacks occurred in wilderness haunts, many taking place on Vancouver Island in British Columbia. Mountain-lion-related incidents have increased in California, too, sometimes in suburban areas

that have unwittingly been made into perfect refuges for the predators: regional parks have plenty of deer, and hunting the cats in the state is illegal.

Lately wildlife officials, anxious to educate the public, have been putting up warning signs in parks, closing or rerouting trails in danger areas, and telling people how to behave in cougar country. (If confronted, don't bend down, don't look away. Make noise. Above all, don't run.)

One California victim last year, a mother of two, was attacked and killed by a lioness while jogging. Afterward, the animal was shot, and money was donated separately for the jogger's two children and for the lioness' cub. The fund for the children has reached six figures; the cub, Willow, now resides at the Folsom Zoo. People who see him will be reminded that cougars, though cute, are dangerous.

1993 Last year's Haiti landing had historic precedent, most of it unencouraging

Early in 1993, with more and more Haitians setting off for Florida in rickety craft, and Americans beginning to talk of "restoring" democracy in Haiti, we published an article on Haitian-American history. It described an earlier American effort in Haiti, from 1915 to 1934, when the U.S. Marines occupied and all but ran the country. In the 72-year period before that invasion, Haiti had had coups without number. Of 22 presidents, only one served a complete term. Only four died natural deaths.

The Marines had roads built, and some hospitals and schools as well. They trained a national police force which, it was hoped, would serve the duly elected government and bring a measure of stability. After the Marines left, Haiti fell back into complete disarray until—20-odd years later—the notorious dictator Papa Doc Duvalier used his own police to impose a different kind of stability.

In the past year, U.S. troops once again landed in Haiti (this time in the name of the United Nations), drove out Gen. Raoul Cédras, disarmed the police and army, and reinstalled President Jean-Bertrand Aristide. They also became favorites with Haitian children. Since then, many of our troops have come home. But 6,000 U.N. troops, including about 2,500 Americans, are to stay on in Haiti. One of their jobs: to create a combined army and police force loyal only to the duly elected government.

1994 *Star Trek: Voyager*: Will science follow where TV boldly leads?

Last year an astrophysicist mused about all the sci-fi gizmos that have become hardware in the real world since we first saw them on board the original Starship *Enterprise.* Things like cellular phones and laptop computers. Now the *Enterprise* and its crew have been replaced by a new TV series, *Star Trek: Voyager,* with a gregarious cadre of senior officers led by Captain Kathryn Janeway. There's still a lot of future "science" on display. Circuitry aboard, for example, consists of "gel packs" containing bio-neural cells that operate far faster than traditional computers; the doctor is not flesh and blood but a holographic image.

There's plenty of time to pick up on the new stuff. Janeway and her gang may spend years (real TV time) on this intergalactic journey.

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WHAT GOOD ARE 13
HAVE SLIPPE

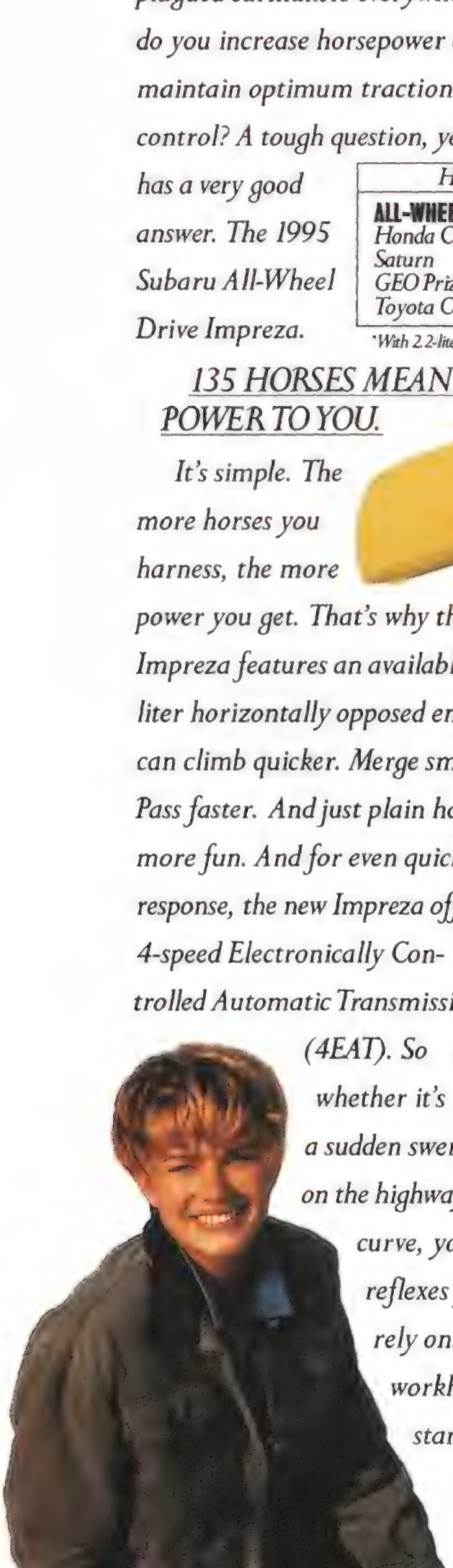
It's a question that has long plagued carmakers everywhere: how do you increase horsepower and still maintain optimum traction and control? A tough question, yes. But one that now has a very good answer. The 1995 Subaru All-Wheel Drive Impreza.

Horsepower Comparison	
ALL-WHEEL DRIVE SUBARU IMPREZA*	**135**
Honda Civic	125
Saturn	124
GEO Prizm	115
Toyota Corolla	105

*With 2.2-liter engine option. Source: Kelley Blue Book

135 HORSES MEAN MORE POWER TO YOU.

It's simple. The more horses you harness, the more power you get. That's why the new Subaru Impreza features an available 135-hp 2.2-liter horizontally opposed engine. So you can climb quicker. Merge smoother. Pass faster. And just plain have more fun. And for even quicker response, the new Impreza offers 4-speed Electronically Controlled Automatic Transmission (4EAT). So whether it's a sudden swerve on the highway or a steep mountain curve, you get the racehorse reflexes you rely on. The workhorse stamina you need.



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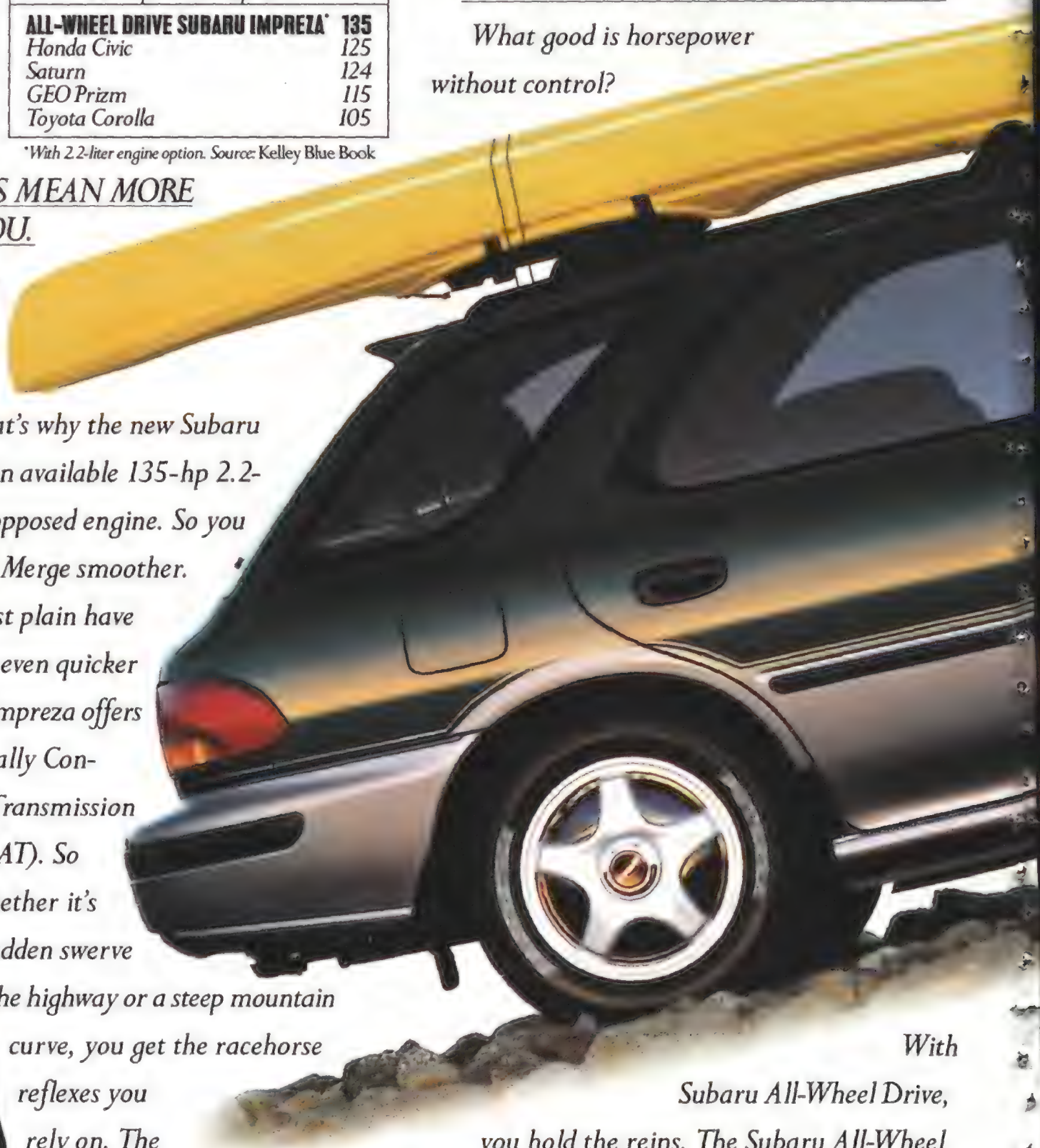
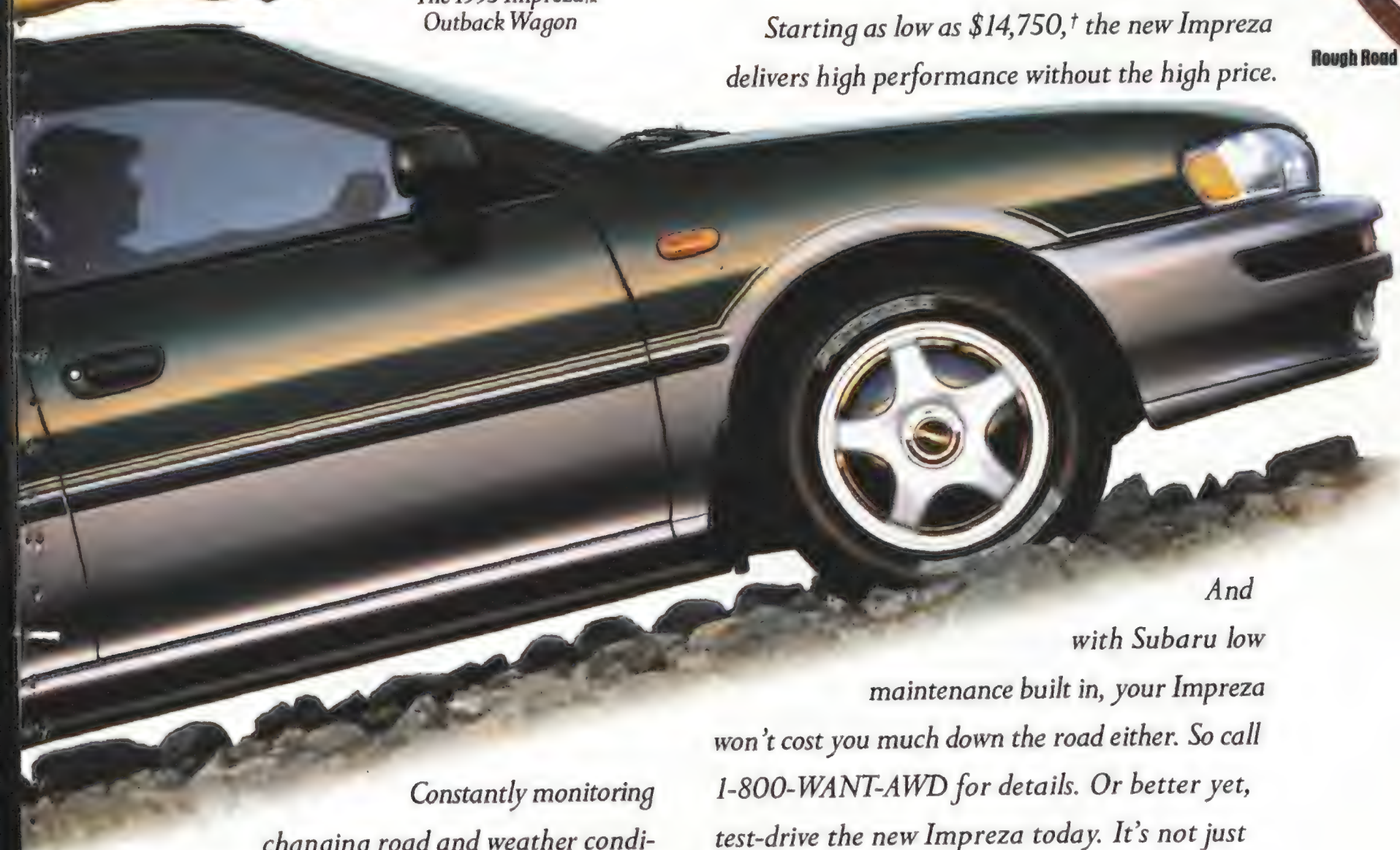
What good is horsepower without control?

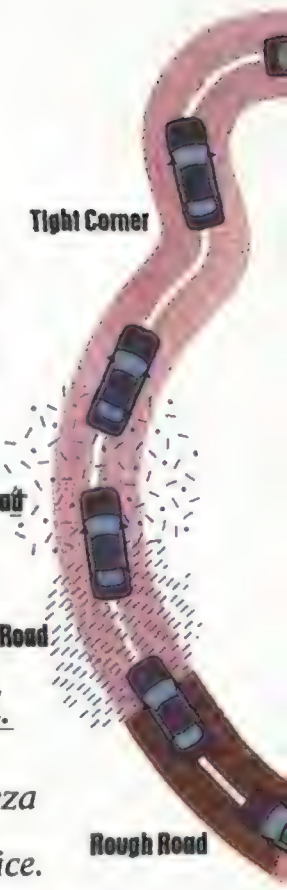


With Subaru All-Wheel Drive, you hold the reins. The Subaru All-Wheel Drive system automatically transfers power from the wheels that slip to the wheels that grip.

5 HORSES IF THEY RY HOOVES?

The 1995 Impreza™ Outback Wagon





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By Michael Parfit

The Floods That Carved the West

In a great geological catastrophe, a giant lake exploded through an Ice Age dam, and its waters swept across the Pacific Northwest; awesome signs of its passage are still visible to this day

Rampaging with the force of hundreds of Niagaras, water gouged this mile-wide hole in Washington's Grand Coulee.

Photographs by Ted Wood

I live on the edge of catastrophe. It's in the woods above town. It hides along the ridges on the open slopes to the west and south of my Montana home. Down along the river you can see it, if you know what to look for, in shapes of rock and sand. It is a record of an event—or many events—so enormous that it boggles the mind. In the long haul of time, this happened just yesterday, yet almost no one knows about it.

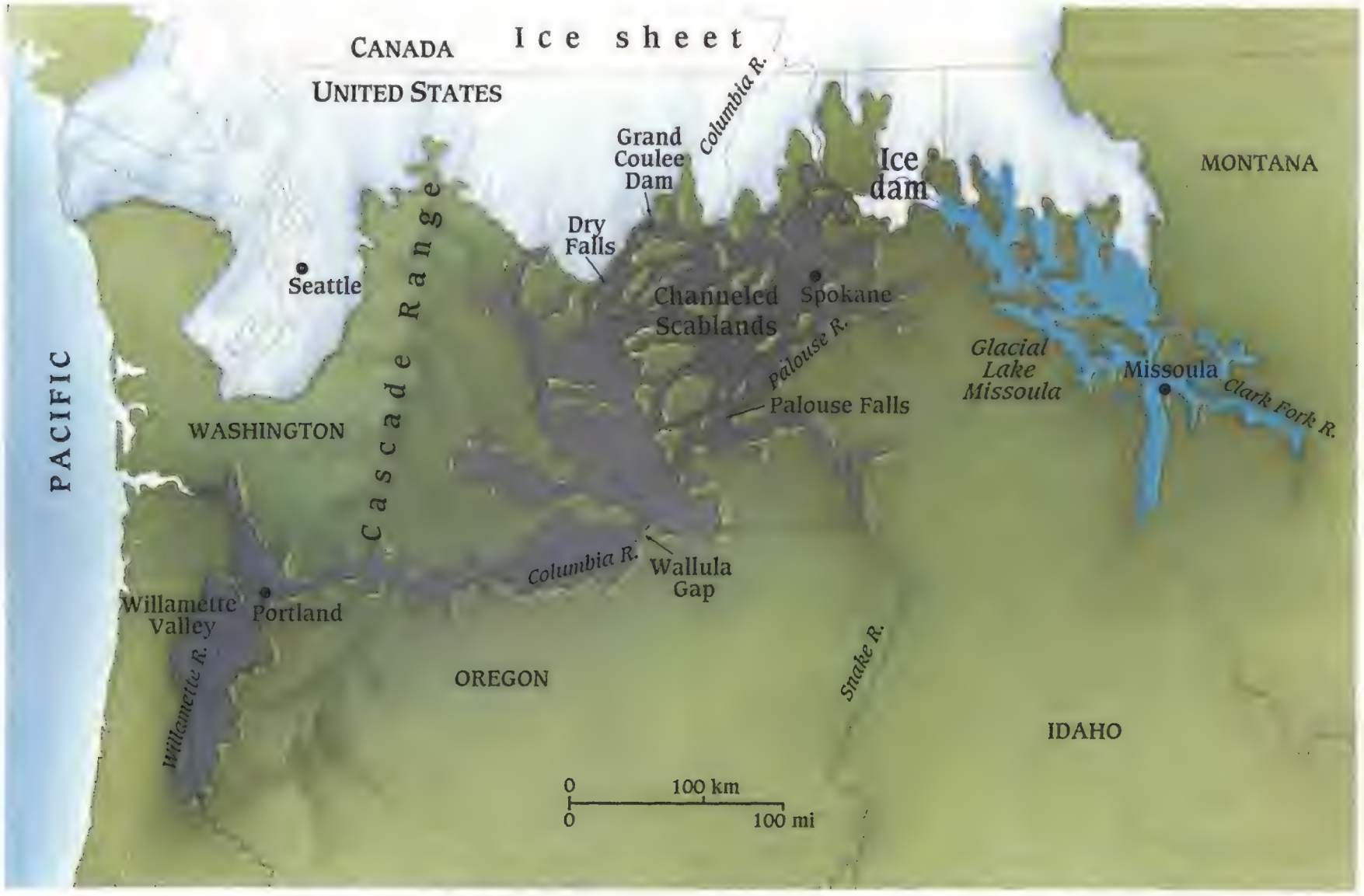
This catastrophe, referred to by geologists and a few nonscientists as the Lake Missoula Floods, is only now emerging from obscurity. It's about time. We're not talking about a little rising water in the spring here, nor of something as relatively small as the mess along the Mississippi in 1993. These floods ran 60 times the flow of the Amazon. And they happened again and again.

Because the Lake Missoula Floods occurred as recently as 15,000 years ago, at the tail end of the last ice age, the geography they built hasn't changed much. Throughout the Pacific Northwest you can see the dramatic landforms, strange settings and subtle scars they left behind. But after the floods were "discovered" in the 1920s by a geologist named J Harlen Bretz, a furious debate took place over the meaning of all that physical evidence. It was an argument that represented both the best and the worst of the way science works, and it helped to change the discipline of geology itself.

It's odd how peaceful it is now, where this drama once roared. One quiet evening in the late fall I climbed a broad slope in central Washington State with photographer Ted Wood and geologist Richard Waitt of the U.S. Geological Survey (USGS). Waitt has been studying the Lake Missoula Floods since 1971. There seemed nothing remarkable about this slope, but Waitt had something up his sleeve.

Suddenly the land ahead of us dropped away. Where there should have been just a continuous gentle rise was, instead, an enormous hollow far bigger than a football stadium and roughly the same shape. Waitt told us the hole was 180 feet deep, below 340-foot-high cliffs.

Like many features of the landscape between Montana and the sea, it would have been much easier to understand if it had not been so huge. Later, when I flew my small Cessna over the hole, it looked exactly like a place where a seasonal creek had dried up, leaving a pool and a gravel bar—except for its absurd size, one-third of a mile wide and three-quarters of a mile long.



Map shows where ice dam blocked Clark Fork River, backing up water to form Glacial Lake Missoula. When water breached the dam, flood spread over Washington and Oregon and roared down the Columbia River.

Without seeing him in the dusk, I knew Waitt was smiling. "Erosional landscape, plunge pool, longitudinal bar," he said. "How can you explain this by anything other than water?"

The trouble is, nobody's ever seen enough water to do something this big. And there are features like this all over this part of the West: isolated heaps of gravel hundreds of feet high where there should only be plains; dozens of parallel lines etched on mountainsides; enormous holes in the ground; huge canyons dug where almost no water runs; sandbars hidden high up in the hills; ripples so huge and long they can be appreciated only from the air. But until J Harlen Bretz (right) came along, most geologists believed that floods of this size simply could not happen.

The discovery of the floods is like a classic mystery story, and Bretz was a classic geological sleuth. He was born in 1882 in Saranac, Michigan. Raised a Methodist, he went to a religious college, at one time planning to be a missionary. But a skeptical outlook turned him toward geology instead, which led to a long career teaching at the University of Chicago. He had a robust and, as he put it himself, "recurrent earthiness" in his sense of humor and a Socratic method of teaching that included biting rejoinders to students whose answers were sloppy. He had, one colleague said, an "agile and well-disciplined mind" and a hunger for things that were real.

It's ironic that the very qualities that turned Bretz away from his strict religious background helped him kick some pins out from under the geological theory that had undermined the biblical view of creation. This theory of Earth's development was Uniformitarianism—the idea that the same geological processes we see today occurred over extremely long periods of time to produce our present-day landscape. The idea, supported by much evidence, had discredited the theory known as Catastrophism, which explained Earth's shape through a series of upheavals far more violent than any seen today—events like Noah's flood.

In some of his early photographs, Bretz wears a brusque mustache and a stern eye. "He looks like a prosecuting attorney," Richard Waitt said. Looking at these pictures, I can imagine Bretz rigorously enforcing Uniformitarianism. But it was the opposite: his sleuthing shook that doctrine to its roots.

It began with a USGS topographic map of Quincy Basin, which covered an area just east of the Columbia River, near a huge dry canyon that later became well known as the site of a major dam: Grand Coulee. On the USGS map were several cliffs and huge potholes. Unmistakably, they were waterfalls, but there wasn't any water.

Shortly before World War I, Bretz, who was teaching in a Seattle high school, studied the Quincy Basin map out of sheer geological curiosity. He was puzzled by the size and shape of the features, which included two big, round holes like the one Waitt, Wood and I had seen.

"Puzzled" may be too mild a word. "He saw those potholes on the map like two big fried eggs," Waitt said. "He must have thought, What the hell is this?"

The map of Quincy Basin was both clue and question. "I had been intrigued," Bretz wrote, understating it. After he began teaching geology at the University of Chicago, he returned again and again to eastern Washington in the summers, driving West with his wife and two children in a Dodge sedan with a grub box on the back, bedrolls strapped on the sides and an umbrella tent and poles on the front bumper. He studied features like the falls and potholes in Quincy Basin; the vast canyon of Grand Coulee, which includes another spectacular dry falls; curious granite rocks—called erratics—that did not match the local basalt rocks; and 30-foot boulders that had been carried far from their source by some mechanism. But the focus of his attention was an area of very strange landscape that marks eastern Washington. It was called the scablands—about 2,000 square miles of raw, peeled ground that stretches from Spokane west to the Cascades and south all the way to the Snake River (see map, opposite).

"Like great scars marring the otherwise fair face of

In 1923 geologist J Harlen Bretz cracked the mystery of the scablands but was scorned by other scientists.

Michael Parfit's SMITHSONIAN *articles have often involved big water, from the Mississippi to the Amazon.*

the plateau are these elongated tracts of bare, or nearly bare, black rock," Bretz wrote. "The popular name is an expressive metaphor. The scablands are wounds only partially healed . . . in the epidermis of soil."

I've walked over small parts of these scablands. The landscape is both bleak and beautiful. It's made up of broken lava, dry grass and sagebrush, and is curiously interrupted here and there by long, isolated mounds of soil up to 500 feet high and several miles long, which remind Richard Waitt of battleships. Only these islands of soil are tillable; the rest of the land is hardscrabble pasture. Only a few ranchers and assorted iconoclasts live here. When I asked one of them why people homesteaded this tough land, he grinned at me. "Some people came here," he said, "*because* it couldn't be plowed."

Bretz came because there was a secret hidden in this scalped rock. He went looking for it on foot. There weren't many roads on the scablands when Bretz worked on them, so he walked. Bretz's son, Rudy, remembers that on some days his father would hike as far as 40 miles.

He recorded hill and gravel bar and pothole but did not describe for posterity the moment it all coalesced in his mind and became a story without parallel in his science. It's likely that the idea grew compellingly from his first look at those "fried eggs," overwhelming his own allegiance to Uniformitarianism. "The writer confesses," Bretz wrote in a 1923 paper, "that during ten weeks' study of the region, each newly examined scabland tract reawakened a feeling of amazement." Much later he wrote in his informal memoirs: "I could conceive of no geological process of erosion to make this topography except huge, violent rivers of glacial melt water."

"It was *a debacle which swept the plateau"*

Bretz's second paper carefully summarized his description of the scablands in 21 succinct statements. But by the end of the 32-page treatise, he had let the dangerous cat out of the bag: "Fully 3,000 square miles of the Columbia Plateau were swept by the glacial flood," he wrote, insisting with italics, "It *was* a debacle which swept the Columbia Plateau."

If there was an echo of desperation in the assurance of those italics, it was justified. Bretz published another major paper on the scablands in 1925, and after that the floods hit the fan. Two years later he was invited to present his theory to a group of geologists in Washington, D.C., and was clobbered by objections. One critic, James Gilluly, called Bretz's ideas about the mechanism, magnitude and swiftness of floods wholly inadequate and preposterous. Like one of the floods, Gilluly had dug a big hole for himself, out of which he would later be forced to climb. But in the intervening years Bretz's theory was, well, uniformly attacked.

The ice dam lay in Idaho where the Clark Fork River enters Lake Pend Oreille. All but the highest mountains were bound in ice before Lake Missoula broke through.

Horizontal stripes on the mountains standing above Missoula mark the lake's ancient shorelines, suggesting that there may have been not just one flood, but many.

Richard Foster Flint, a specialist in glacial geology at Yale, who had once actually been taught by Bretz, became what Bretz called his "most vigorous opponent." To Flint, everything that Bretz claimed was made by a huge flood could also be explained by "leisurely streams with normal discharge."

Bretz's opponents had one great weakness: many of them had not spent much time in the field actually looking at the features Bretz described; they had no gut sense of their size. And Bretz had one great weakness: he did not know where the water had come from. He suggested some vaguely high rates of ice melt due to climatic warming, or ice turned to water by volcanoes erupting under the glaciers, but neither of these theories was satisfactory. He fell back on insisting that the record of the flood was there to be seen and must stand on its own.

The rock's confession had been denied

And there, for a while, the matter rested. In the early 1930s Bretz went through what we might now call a midlife crisis, a period of apparent despair. Flint's interpretation of the more orderly creation of the scablands was incorporated into textbooks. The Depression came, then World War II, but though the sleuth had wrestled the secret of the great Lake Missoula Floods out of the channeled scablands, the rock's confession had been vigorously denied.

In the past year I've visited the channeled scablands and the surrounding landscape several times and have flown across them often. When you see the expanse of channels it's at first hard to believe your eyes. Then it's hard to believe that so many people rejected the idea of huge floods.

The sights are stunning. Richard Waitt recently led a field trip of eminent geologists through the scablands. Near the end of one day, as the group approached a viewpoint, one of the visitors asked him, almost plaintively, "Is this going to be another 'Wow!' stop?"

The Wow! stops come in two types. First are the scenic splendors. These include the dry falls—far larger than Niagara—midway along the Grand Coulee and a wonderful semicircular plunge pool on the Palouse River, where a thread of water drops into a basalt basin carved by a far larger flow. The second type is made up of more-subtle features that, when you recognize the story in them, amaze you. A huge rock in a field in the Willamette Valley near Portland, Oregon, turns out to be a chunk of granite—an erratic—carried from as far as Idaho by icebergs caught in the flood. Long hills along the Snake River show where floods completely filled the river's canyon and spilled out over the edges, driving gravel up into bars. The bars look just like the little ridges of gravel you'd stand on to fish your local stream—except that they're miles long and hundreds of feet high.

Once during a field trip I attended, Waitt stood with

In the Washington scablands, the flood scoured down to bare basalt rock, appearing here as dark patches.

his group on a ridge above the Columbia, staring more than 900 feet down at what looked like a toy barge on the river. Waitt was explaining how the river had risen almost to this level and poured through into the next drainage. It had risen about three feet a minute.

"Would have been a great place to stand and watch," one of the group said.

"Scary, though," said another.

"Yeah," said a third. "You and five million rodents."

Once you see it, the evidence seems overwhelming. How could Flint and colleagues have been so obtuse? Perhaps because things like this look obvious only after someone has the nerve to see them. Scientists stare at chaos, hoping to see a pattern, and when one seems to match reality, it's difficult to see an alternative.

Uniformitarianism was a useful explanation of the world, so it was well defended. And because science is not a belief but a search for reality, there can be no casual agreement to disagree; with something as tough as truth at stake, arguments, though sometimes courteous, are conducted with knives. So until Bretz had a source for his water, there would be acrimonious stagnation.

On June 18, 1940, that stagnation began to erode. The major breakthrough happened that day at a meeting of the American Association for the Advancement of Science, held in Seattle. Bretz declined to attend, saying that he had already published all he had to say. But another man stole the moment.

He was a USGS geologist named Joseph Thomas Pardee. Not much of a speaker, he gave a short talk about ripple marks in a lake bed.

Many years before, Pardee had written a paper describing a large lake that the evidence suggested had filled several valleys in western Montana during the Ice Age. It was called Glacial Lake Missoula. It had been created when a glacier blocked a river. From the lines of old lakeshores that stand high above the city of the same name, Pardee estimated that the lake had been about the volume of Lake Erie and Lake Ontario combined. This was a lot of water: some 500 cubic miles of it. Lake Missoula began a few miles east—just upstream—of the channeled scablands.

Most geologists knew about Lake Missoula, but there had been many glacial lakes in the West, and there was no compelling evidence that Missoula had ever burst its ice dam. But Pardee offered just that. He delivered his paper quietly, but its message was powerful. The ripple marks Pardee had seen and described were up to 50 feet high and had a wavelength of between 200 and 500 feet. They were enormous. The marks could have been made only by a vast pouring of waters over the slope, which would have happened only if the ice dam that made the lake had suddenly failed. And where would those 500 cubic miles of water inevitably have gone? Into the channeled scablands.

The huge potholes on the edge of the Quincy Basin gave Bretz the first clues that an event of catastrophic proportions had occurred. Nothing could have made such topography, he wrote, "except huge, violent rivers."

Here was the source of Bretz's flood.

"When he [Pardee] stopped speaking," wrote scientist Howard Meyerhoff, "there were several moments of silence as the significance of his observations sank in. As the first ripples (?) of applause started, a few in the audience rose to their feet and the rest immediately followed, to give the startled speaker a rousing ovation."

So Uniformitarianism had been challenged by, of all things, a flood. A significant story had been added to the history of the world, and geology had been complicated by catastrophe. Today, as scientists increasingly accept ideas of huge volcanic explosions or meteoritic impacts to explain mass extinctions, there's been a general acceptance that grand events are also part of the normal patterns on Earth. Bretz had been a pioneer.

Years later James Gilluly, who had been so critical of Bretz, visited the striking cataract at Palouse Falls with another geologist. Gilluly stood for a few minutes looking out at the vast curve of basalt where hundreds of times the present flow had foamed into the chasm. Then he gracefully climbed out of the hole he had dug for himself years before: "How could *anyone* have been so wrong?" he said.

An unknown bard of the USGS's old Pick and Hammer Club wrote later:

A glacier once 'neath its collar got hot
And out o'er the scablands a mighty flood shot.
Now truly, Gilluly, t'will fool ye,
For Bretz has been there and he says there is not
A shadow of doubt what occurred on that spot.
'Tis true, it has Jim Gilluly's goat got.
But speaks he not truly, Gilluly?

Today the landscape in which Lake Missoula filled and flowed is a quiet place. You can hear the screech of a red-tailed hawk half a mile away and a tractor at two miles. But when a Lake Missoula Flood came through here it was not quiet, and when you know about the floods, the places seem haunted by that ancient roar. Everywhere you go in this dry, water-carved landscape, you can't help wondering: What was it like?

The "dam" was a lobe of a glacier that moved south and blocked what we know today as the Clark Fork River near the present town of Sandpoint. The land there looked very different from the wooded mountains and grassy scablands of today. It was sparsely vegetated, with dunes of windblown sand and silt, braided gray rivers and low vegetation. There were cliffs and walls and sheets of ice on the northern horizons. In this stark landscape the lake that grew behind the ice dam must have been swirled

Layers of silt, created when water backed up behind Wallula Gap, record the many floods that came through.

with dirt in summer and frozen solid each long winter.

If a person had stood on top of the glacial lobe that had dammed the river, no sign of impending floods would have been visible. River water was cutting out a channel, not through the ground below but at the base of the ice. Ever so slowly, taking perhaps weeks, the water cut a channel through the ice. Then the pace picked up.

A small gush emerged from a dirty-looking cave on the downstream side of the dam. Over days the gush grew, eating away the ice, growing larger, moment by moment, swelling exponentially. Finally, the ice roof that had survived collapsed into what was now a torrent. In as little as two days of thunderous cracking, shattering, collapsing ice, Lake Missoula rocketed through a mile-wide canyon in the glacier.

What did it look like? What happens when 500 cubic miles of water are suddenly released down a slope?

There have been several smaller versions in the modern world. In 1976 when the Teton Dam in Idaho burst catastrophically, water blasted through a narrow canyon on its way downriver to Sugar City. From this small hamlet you can barely see the hills where the dam was built, but "homes were swept off their foundations or simply crushed into kindling and rubble," reported the *Idaho Statesman*. "Farm equipment, pickup trucks and cars were strewn across swamped fields as if tossed about by a child throwing a tantrum."

Such an event only hints at a Missoula Flood. In the Clark Fork canyon, the downstream arm of the lake was abruptly turned into a river. This river was up to 1,500 feet deep and ran with ten times the water of all the rivers in the world combined: more than 600 million cubic feet per second. (The Mississippi flood of 1993 peaked at 1 million-plus cubic feet per second.) In places a car being carried downstream could have earned a Montana speeding ticket: the water coursed at up to 60 miles an hour.

As the flood spread out, it drove west and south in a roaring line. "In places it might have looked like a tidal bore," Richard Waitt said, "but a bore maybe 50 feet high. A muddy, angry front with ice and boulders in it." If the nearly barren Ice Age plains of eastern Washington were dry that season, the advancing flood may have been marked by a boiling cloud of dust as well as foam.

Much of eastern Washington is covered with loess—rich, windblown soil built up over centuries. This is what covered the area that became the scablands. When the flood hit, it dug out the loess and carried it away. Where the flood passed, the water ate right down to the rough basalt, heaping it into gravel bars or grinding it into sand, making rapids and waterfalls and circular pools—some of the holes large enough that rustlers have used them to hide whole herds of stolen cattle. In hundreds of high spots the flood left islands of loess soil—the long mounds that Waitt thinks of as battleships facing upstream.

The flood boomed out of the mountains and scoured the scablands. It crashed into canyons and chewed out waterfalls, then broke them up and moved them upstream. It dug canyons down to both the Snake and Columbia rivers. When the flood reached the Snake it roared upstream, heaping gravel into bars several hundred feet high.

Like a hole in the bottom of a giant hot tub

Then, eventually, in its haste to reach the sea, it ran into a tight spot. That constriction is called Wallula Gap. It's a few miles downstream of the confluence of the Snake and the Columbia. It's a mile wide. A mile-wide gap may not seem like much of an obstacle for water, but for a Missoula Flood the Wallula Gap was like a little drain hole in the bottom of a very large hot tub. You pull the plug, but the water doesn't go away at once.

The flood hit Wallula Gap a half-day or so after it peaked at the dam. It roared through the gap but also backed up behind the bottleneck. For a couple of days it made a huge 3,500-square-mile lake as the water downstream elbowed its way through the Columbia

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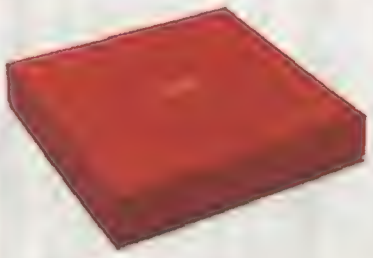

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River Gorge, leaving icebergs and rocks up on the ridges.

At last the water reached Portland, where it would have completely inundated the city. It made gravel bars as big as the city itself, then spread and boomed out to sea. In less than a week it was all over but for the mud. The draining of ponds and the melting of the stranded icebergs took longer, but the flood had ended. Yet up there in Idaho, the broken ice front of the glacier was creeping down the valley, building another dam.

How many floods were there? The numbers are still debated. Bretz suggested as many as six or seven. Waitt and colleagues theorized in the early '70s that the evidence might indicate even fewer. But for Waitt all that changed dramatically in 1977.

From great turmoil to utter peace

One day Ted Wood and I went to the place where Waitt had had his own moment of insight. It's a canyon near Lowden, in southeastern Washington. We approached it in early morning across newly plowed fields. Once again a place that held evidence of great turmoil was utterly at peace. Mist rose from rolling hills and distant sprinkler systems and swirled past the sun, making it all seem timeless and strange. The canyon is a narrow cut in a hill, about 100 feet deep, dug out when an irrigation canal ran amok in 1926 (ah, catastrophe!). It reveals a 39-layer cake of sediments, cut as sharply as if by a knife. These were sediments laid down when the water pooled up behind Wallula Gap and stopped roaring long enough to drop some of its load of mud.

The many distinct layers in the canyon could be explained by a surging in a flood: a kind of back-and-forth current that would change the character of each layer enough—from gravel to silt and back—to make it look distinct. But in late 1977 when Waitt happened upon the canyon, he found a different kind of evidence. In between the 11th and 12th layers of silt was a layer of ash. Waitt knew it had come from an eruption of Mount St. Helens about 15,000 years ago. It was clear and distinct, yet if all these layers had been put down in the middle of a single surging flood, it should not be there.

"I sat and stared at that horizon for about ten minutes," Waitt said. "It didn't make any sense. I thought about it all winter, and it still didn't make any sense. Then I came out the next spring, and it all fell into place."

To Waitt the layers indicate that there may have been as many as a hundred of these gigantic floods, their volume tapering off as the climate warmed and the recurrent glacier dam thinned. This might explain why there are so many parallel shorelines at different elevations in the hills above Missoula.

I stood among the wisps of mist, staring down into the shadowed canyon. It seemed amazing to stand here, about 200 miles from the parallel lines that mark the old shores of Lake Missoula, looking at the same kind of parallel lines, which told the same story: huge floods that happened over and over.

While I stood there, the irrigation district upstream turned water on somewhere, and a pipe in the bottom of the canyon started to flow. The noise of the water went from a trickle to a rush, and there was a rumble in the pipe. A prickle of apprehension ran through me. I wondered if I should move to higher ground.

But Lake Missoula's been gone a long time. The gush of water quit, the sun came out. As we left I thought of J Harlen Bretz, wandering around on the strangest landscape this side of Mars, looking at evidence nobody else could even see because it was so enormous, putting together a piece of the story here and another piece of the story there, hearing in the desert silence of an empty country a tumult and roar of water. Here he was, prosecuting attorney, putting together the story and laying it out for the jury—People's Exhibit A; People's Exhibit B; right down the line, unmistakably right—a coherent, complete, convincing explanation. And the jury snickered and voted against him, trial after trial.

But at last he won the case. Bretz was awarded geology's highest honor, the Penrose Medal, late in his life. "All my enemies are dead," he lamented to his son, "so I have no one to gloat over."

Now Bretz's work may be further recognized: both a task force of government agencies and the Ice Age Floods Institute, a nonprofit organization, have been formed to explore the possibility of making the scablands area a recognizable feature of the tourist landscape, a bit like the Lewis and Clark Trail. Some of the more spectacular sites could be stitched together by guidebooks, making a kind of exhibit for travelers.

One such site has already been dedicated to Bretz. It is the visitors center at Dry Falls in Grand Coulee. A plaque there bears words Bretz wrote in 1928: "Ideas without precedent are generally looked upon with disfavor and men are shocked if their conceptions of an orderly world are challenged."

Reading them, then looking out at the amazing dry cataracts below, I thought of one of the few times Bretz let his enthusiasm for this place show through the austere language of science. He was not just academically intrigued. Like the people who will come, more and more, to see this extraordinary evidence of the power of flowing water, he was in awe:

"Let the observer take the wings of the morning to the uttermost parts of the earth," he wrote, "he will nowhere find its likeness."

Palouse Falls, 185 feet high, is a trickle compared with flood, which raged 100 feet above land shown here.

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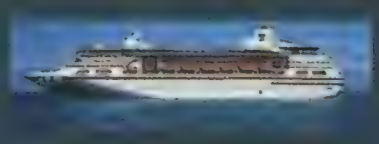

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OCEAN PLANET

A SPECIAL REPORT
BY THE EDITORS OF TIMES MIRROR MAGAZINES

We call it Earth. But truly ours is an *ocean* planet. Nearly 99 percent of the world's living space is in the oceans, a hidden realm of mountains, chasms, and sprawling plains. In April, the Smithsonian's National Museum of Natural History in Washington, D.C., will launch an exhibition showing how closely our lives connect to the oceans. Times Mirror Magazines is joining this celebration to help educate the public about ocean conservation. The following stories reflect some of the exhibition's main themes.

Sand sculpture of the Smithsonian Castle by George Sell. Photographed by Michel Tcherevkoff.

Alex Trotman
Chairman of the Board

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At Ford, we feel strongly that understanding, preserving and properly managing natural resources like our oceans should be an essential commitment of individuals and corporate citizens alike. That's why we are constantly finding new ways to make building and driving our vehicles easier on the world around us, from researching alternative fuels, to reducing waste from our plants, to using recycled materials in the cars and trucks we produce.

It's also why Ford is proud to sponsor educational programs like "Ocean Planet." We hope you will enjoy this evocative and engaging exhibit when it comes to a city near you, and we hope it will inspire a new appreciation for the world's oceans.

Alex Trotman

Photo courtesy of Helmut Horn

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OCEAN PLANET SMITHSONIAN

WHY OCEAN PLANET?

Because the health of our oceans has never been more critical, as the exhibition's curator explains

BY JUDITH GRADWOHL

We may call it earth but ours truly is an *ocean* planet. Almost 99 percent of the living space on earth is found in the oceans, which encompass a realm that, if anything, is richer in natural wonders than the land. Hidden beneath the waves are mountain ranges soaring higher than the Himalayas, chasms plunging deeper than the Grand Canyon, and plains spreading out longer and wider than the Serengeti.

The oceans also support abundant and diverse marine life forms that could not exist on land. We're familiar with some of them, such as the blue whale, the largest animal ever known. Weighing more than 20 full-grown elephants, this magnificent mammal has the heart the size of a small car and blood vessels so wide that a full-grown trout could swim through them. In contrast, much of the life in the oceans is invisible to the naked eye, such as intricate, microscopic algae and viruses so small and numerous that 50 million can be found in a single teaspoon of sea water.

But although we are aware of a vast diversity of species flourishing from surface to sea floor, biologists estimate that between 500,000 and 5,000,000 marine species have yet to be discovered and described. And that's what's intriguing about the oceans: We've have learned so much, but there remains so much to be learned. We know that healthy oceans have a profound influence over lives, and not just via seafood. We get medicines from algae and a host of animals from sponges to sharks, and coastal vegetation and coral reefs buffer the margins of land from violent storms. Yet whenever we explore further in the ocean, we discover more. Just two years ago, for example, scientists discovered, in the mid-eastern Pacific, the world's densest concentration of active volcanoes, more than 1,100 sprawled across an area the size of New York State!

What we do know, however, is that the health of certain areas of the oceans can be described as threatened, critical, or even terminal—and that's the principal reason the Smithsonian Institution created "Ocean Planet." We are directly affected by beach closings due to disease-causing bacteria, by trash on our shores, by collapsing fisheries, and by the loss of wetlands and coral reefs. Although the open oceans remain relatively healthy, coastal waters, which provide our seafood, and recreational areas are seriously threatened by human activities on land. Pollution, habitat disturbance and population growth, and coastal development endanger marine life and, directly or indirectly, our own lives as well.

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JOHN CARNETT

Judith Gradwohl is the curator of Ocean Planet and the director of the Smithsonian Institution's Environmental Awareness Program.

So the mission of Ocean Planet is both celebratory and cautionary. It covers the major marine issues while presenting as vividly as possible the wealth of nature to be found beneath the waves. We hope that it will advance our understanding of the value of the world's oceans and illustrate how our lives both affect and are affected by the health of the oceans.

And we sincerely hope that everyone who visits enjoys the Ocean Planet experience as much as we enjoyed creating it, and leaves with the desire to help conserve this precious resource.

Misunderstood

ONE DAY, A FEW years after "Jaws" was published, I was diving in the Bahamas, examining a pile of old cannons on a reef. A friend who had discovered them wanted to know if I thought they were merely a "dump"—weight jettisoned by the crew of a ship that had run aground on the reef—or if the ship itself had sunk there and might still be buried in the sand nearby. So down to the reef I went, to where the cannons littered the reef like Tootsie Rolls dropped from the pocket of some sweet-toothed giant, and as I sank through 50 feet of gin-clear water I turned in slow circles to see what company I might have.

I wasn't worried about sharks. The reef sharks of the Bahamas generally are shy and averse to scuba divers, and the odds were long against a tiger shark, a more dangerous species, being in the neighborhood. And, since we were anchored miles from deep water, the chances of encountering an open-sea predator like a mako or an oceanic whitetip were less than minimal.

As for great whites, well, the possibility of encountering a great white was so remote as to be nonexistent. Great whites like cold water; this water was bathtub warm. They like deep water; this water was shallow. They're drawn to seal colonies or to the carcasses of dead whales, where food is abundant; here there was nothing worth eating.

Those were the facts. And surely I, recently catapulted to two-bit celebrity by my supposed expertise about sharks, should have known the facts.

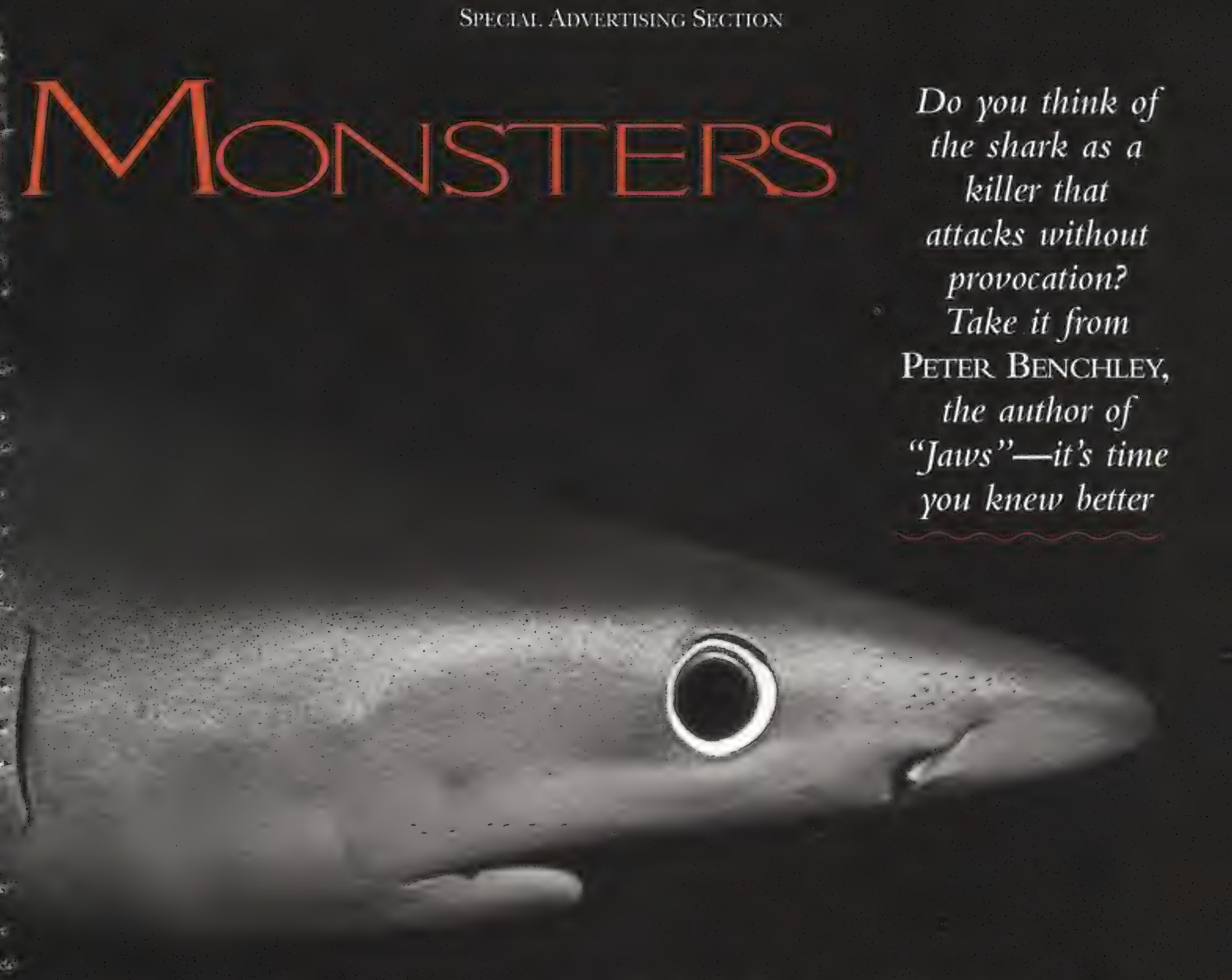
In any event, as I swam slowly from one end of the reef to the other, searching for pieces of wood, encrusted iron, shards of pottery—all telltale signs of a shipwreck—I heard a sound above me. I looked up and saw one of my shipmates lying on the surface in snorkeling gear, slapping the water with one hand. He pointed to the far side of the reef where evidently he'd seen something worthy of my attention. I waved and shot him the "Okay" sign: I'd get to it in a minute. I continued on.

Again I heard him slap the water. Again I looked up. Now he was pointing with some urgency. Again I waved and kept going. *I'd get to it.*

ERNEST H. BROOKS II

MONSTERS

Do you think of the shark as a killer that attacks without provocation? Take it from PETER BENCHLEY, *the author of "Jaws"—it's time you knew better*



The next sound I heard was the "thrum" of his fins churning the water as he hurried back to the boat. Strange, I thought.

I reached the end of the reef, and started to turn back. Then, suddenly sensing another presence, I raised my eyes and found myself face to face with, and not five feet away from...a great white shark.

No question, no doubt. The pointed snout, the underslung mouth, the black eye, the torpedo shape of the gunmetal gray body (12 feet long, perhaps, though it looked to be at least 25) and, most distinctive of all, the unique caudal peduncle—rounded protrusions near the tail, resembling horizontal stabilizers—all broadcast the majesty of a great white.

I froze, able only to picture the ironic headlines that would announce my demise.

But the shark froze, too. And then, abruptly, frantically, implausibly, the great white wheeled around, voided its bowels, and disappeared in a nasty brown cloud.

I didn't move. I was too breathless and grateful and stunned. Did that actually happen? Could the most fearsome predator on earth, the largest carnivorous fish in the sea, have fled from a puny human—from *me*—like a startled rabbit?

Back on the boat, when my pulse had dropped below 250 and my skin color had lost its necrotic gray, I began to wonder if the accepted facts about sharks were not facts at all, and I've been reappraising ever since. The process is ongoing and endless, but if I've been able to draw a single, solid conclusion, it is this: The more we know about sharks, the more we realize how much there still is to be learned.

When I wrote "Jaws" more than 20 years ago, we lived in a different age. Richard Nixon was President, there was no cable television, no such thing as a VCR, Steven Spielberg was an unknown wunderkind in his twenties, and our knowledge of sharks—science's and the general public's—was still in its infancy.

My research for the book was thorough and good....for its time. I read papers, watched all the documentaries, talked to all the experts. I realize now, though, that I was very

Thousands of sharks die in nets or on longlines and are discarded because they aren't needed. Others are massacred because a few body parts are worth a fistful of dollars.

much a prisoner of traditional conceptions. And misconceptions.

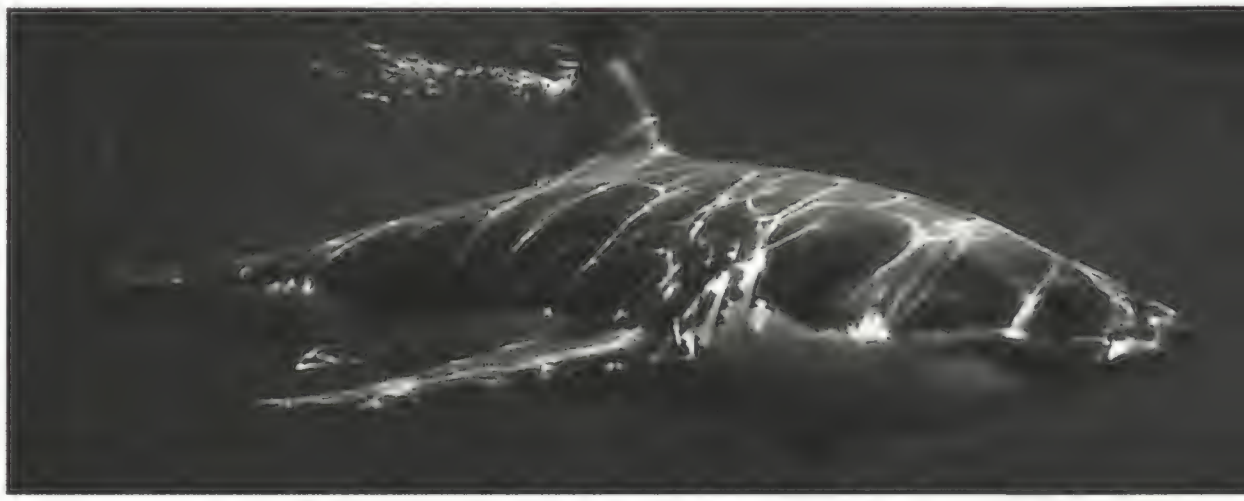
In those days, for example, it was common knowledge that sharks were not only carnivores, they were omnivores; they would eat anything. They would attack, kill and devour human beings without much, if any, provocation. They would attack boats. They were compelled by their nature—all species, without exception—to keep moving, or they would die of anoxia, a severe lack of oxygen. The shark had, as Richard Ellis points out in his superb book, "Monsters of the Sea," "...come down through history with a reputation as an ancient, mindless, man-eating, ship-following, eating machine that should by rights be eradicated from the face of the earth."

But, as Ellis goes on to say, "As with all myths, this one has some grains of truth embedded in a substantial matrix of fantasy."

I couldn't write "Jaws" today. The extensive new knowledge of sharks would make it impossible for me to create, in good conscience, a villain of the magnitude and malignity of the original.

Current theory holds that, with rare exceptions, sharks do not intentionally attack human beings. In fact, most of the 368 known species have neither the capacity nor inclination to attack, and only ten or twelve species have been known to even hassle a human.

Some attacks probably are cases of mistaken identity: Photographs have demonstrated that, seen from underwater, a person on a surfboard silhouetted against the sun is indistinguishable from a sea lion. A clumsy human swimming in murky water could easily be taken for a wounded fish. And a scuba diver wearing a black wetsuit and black fins may well appear to a passing shark to be an acceptable meal of warm-blooded mammal—a sea lion, perhaps. (Of course, if a



CHUCK DAVIS

3,000-pound shark chooses to sample a scuba diver, believing it to be a sea lion, by the time it realizes its mistake, apologies may ring a bit hollow.)

Other attacks may be triggered by a shark's instinct to protect its territory. Some sharks emit warning signals and demonstrate distinctive postures before they attack. Reef fish receive the messages and take cover; humans may not perceive or understand them, and may invite trouble by refusing to retreat.

We also know now that even the most formidable great white shark does not attack boats. Responding to complex and confusing electromagnetic signals in the water, a great white will test a boat, exploring it with its mouth to determine if it is edible.

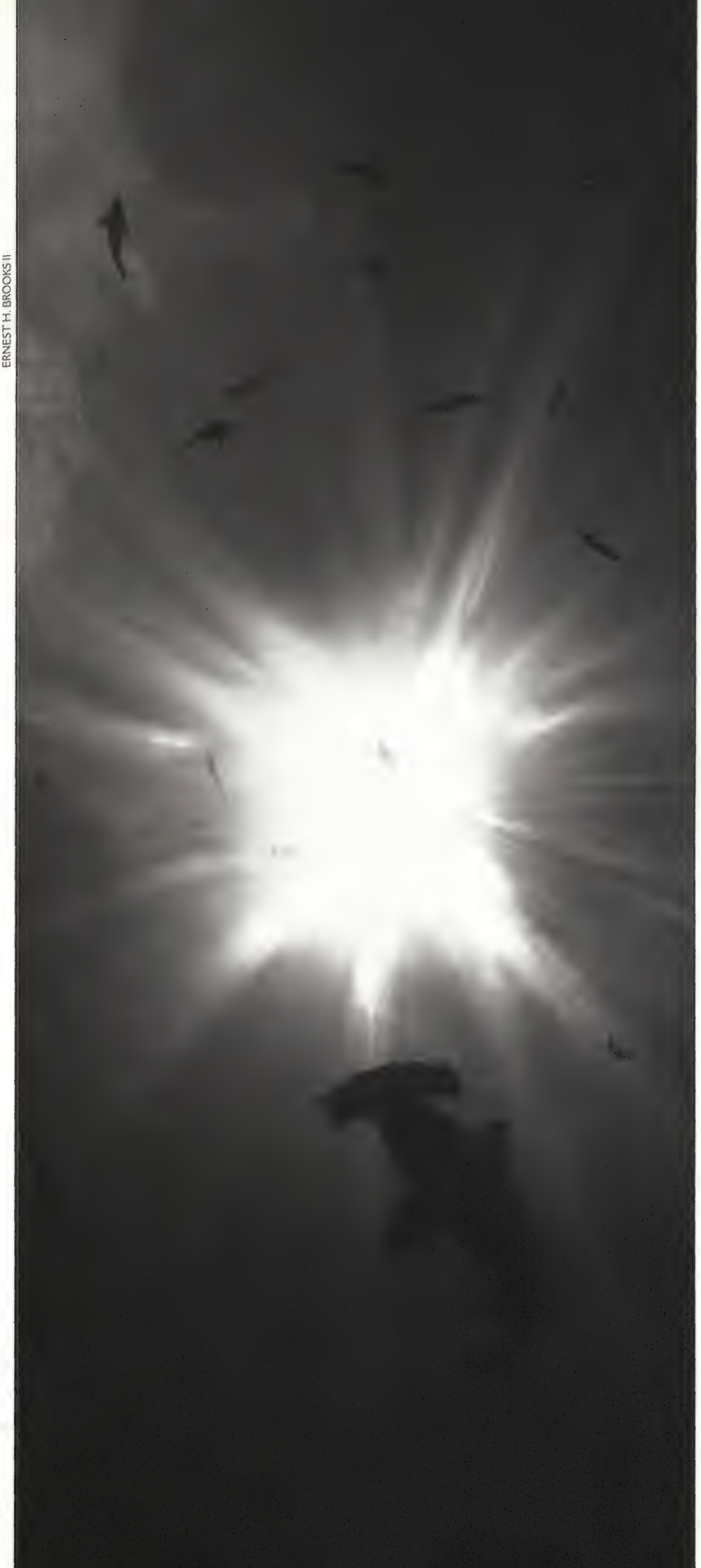
And not all sharks have to keep moving. As Dr. Eugenie Clark of the University of Maryland discovered in waters off Mexico, there are sharks who can rest motionless, extracting oxygen from the water carried over their gills by flowing currents.

In any event, despite the attacks that do occur—and each one generates appallingly sensational headlines—it is generally accepted today that a person has a much greater chance of being killed by bee stings than by a shark.

None of this is meant in any way to dismiss the danger or diminish the horror of a shark attack. Great whites have been documented at 23 feet long and can weigh more than three and a half tons. They do eat people now and then, and surely there can be no more gruesome a way to go than to be gobbled up by a monster fish. I will never forget the celebrated Australian diver Rodney Fox recalling for me the nightmare of being attacked in the 1960s. "I looked down," he said, "and saw that great conical head rising at me through a cloud of my own blood, and that's when I knew I was in trouble."

But sharks are more often victims than vil-

Largest shark: Whale shark. Up to 59 feet long. **Smallest shark:** Dwarf dog-shark. Up to 7.9 inches. **Species of shark:** 368. **Species that have attacked people:** 21. **Shark attacks reported per year:** 100. **Fatal attacks per year:** Fewer than 30. **Sharks killed per year:** 100 million. **Odds of being killed by a shark:** 1 in 300,000,000. **Odds of being attacked by a shark:** 1 in 100,000,000. **Odds of being audited by the IRS:** 1 in 66.



ERNEST H. BROOKS II

lains. No one knows precisely how many sharks are killed every year, but a widely accepted estimate is 100 million. In other words, for every recorded attack on a human being, more than four million sharks are destroyed by human beings.

Much of the killing is wanton and wasteful. Thousands of sharks die in nets or on longlines and are discarded by fisheries because they aren't needed. Others are massacred because a few body parts are worth a fistful of dollars, as with "finning," in which a shark is caught, its fins are sliced off to be sold to make soup in Asia, and the still-living animal is tossed back into the sea to die.

Our excess, as one may expect, is returning to haunt us. Shark catches, which ballooned in the last 20 years, are beginning to decline, not from lack of initiative but from a lack of sharks. Great whites have already been declared endangered in South Africa and parts of Australia, and the populations of several others species have been reduced to a point where recovery is very much in question.

There's a curious paradox inherent in our reckless assault on sharks. As the bizarre overreaction to "Jaws" demonstrated, while we may fear sharks and profess to hate them, we are also thrilled by them. Ellis quotes sociobiologist E.O. Wilson on man's contradictory view of sharks, specifically the great white. "We're not just afraid of predators," Wilson writes. "We're transfixed by them, prone to weave stories and fables and chatter endlessly about them, because fascination creates preparedness, and preparedness, survival. In a deeply tribal sense, we love our monsters."

The mistake we make, then, either in seeking to destroy sharks or in not caring if we even inadvertently destroy them, is one of cosmic stupidity. If I have one hope, it is that we will come to appreciate and protect these wonderful animals before we manage, through ignorance, stupidity and greed, to wipe them out altogether.

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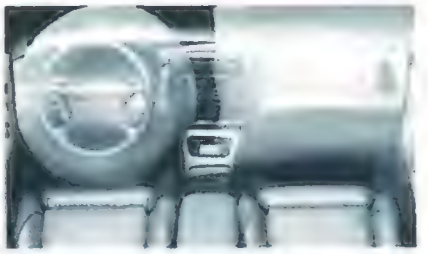

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WHAT IS POLLUTING OUR BEACHES?

Everything from cigarette butts to raw sewage. But it's what you don't see that really hurts

BY JOE BRANCATELLI

OCEAN PLANET

WHEN YOU stand on the gently sloping hillside overlooking Fleming Beach on the rugged western shore of Maui, it's hard to imagine there could be anything wrong with any beach anywhere in the United States.

The powdery, white sand is clean and pristine. The blue-green Hawaiian waters really do sparkle in the afternoon sun. Off in the distance, perched on craggy rocks, fishermen cast *upena kiola*, their hand-thrown nets, into the sea.

The tragedy of this perfect scene is that Fleming Beach is an exception. Bluntly put, many of our beaches are under attack. Pollutants as exotic as giardia—a single-celled protozoan—and as prosaic as the cigarette butt foul our shores, damage fragile ecosystems, and profoundly threaten the simple pastime of spending a day at the beach.

The most visible form of beach pollution is "marine debris," what the layman prosaically calls "garbage." In 1993, the national beach clean-up sponsored by the Washington, D.C.-based Center for Marine Conservation, collected more than seven *million* items of trash. In Texas alone, volunteers collected more than a ton of debris for every mile cleaned. In Connecticut, they collected 1,840 cigarette butts per mile of beach (in December 1994, the Hanuama Bay beach in Honolulu, Hawaii, became the first "no-smoking" beach). CMC volunteers also gathered more than 40,000 rubber balloons, 25,000 plastic six-pack holders, 300,000 glass and plastic beverage bottles, and 200,000 metal beverage cans.

Beachgoers are not the only culprits. Commercial fishing fleets, military vessels, cruise ships, and pleasure boaters dump tons of galley waste, plastic fishing lines and nets, and other garbage into the ocean. A survey conducted on the beaches of Amchitka Island in Alaska determined that commercial fishermen left behind more than 950 pounds—almost half a ton—of trawl webbing for each mile of beach.

Marine debris is not only harmful to wildlife (a sperm whale found dying on the New Jersey shore in 1985 had a mylar balloon lodged in its stomach, and three feet of purple ribbon in its intestines); it also is not easy to eradicate and occasionally has caused beach closures. Yet its most visible affect on beaches is aesthetic.

Another visible polluter is oil, principally because of the sensational aspect to spillages. Yet oil rarely affects beachgoers. Not so other, more insidious, types of pollution. Invisible pollutants known as "pathogens" contaminate beach waters and estuaries, reaching us via raw sewage, sludge, and wastewater effluent, or from storm drains discharging into coastal waters and rivers.

As a nation, we spent $76 billion between 1972 and 1992 to build or expand sewage treatment plants, but it clearly has not been enough. For example, more than 2.5 billion gallons of untreated waste is flushed into Narragansett Bay, Rhode Island, every year, and eight coastal states don't even monitor pathogenic activity regularly.

These pathogens can bring disease,

either from our swimming in infected waters or our consuming contaminated seafood or shellfish. Among the principal types of pathogenic organisms are viruses such as hepatitis A, the bacteria responsible for cholera and gastroenteritis, and giardia, which can cause chronic diarrhea and even death. During the last decade, cholera has been detected in shellfish beds in Mobile, Alabama, and directly traced to an outbreak in South America. Shellfish beds were closed and fortunately no one contracted the disease.

The effect of pollutants also can be measured by beach closures. During 1992 and 1993, according to the Natural Resources Defense Council, 23 states issued almost 5,000 beach closures or advisories, and many other polluted beaches went undetected because states did not have monitoring systems.

Still another form of dangerous pollution is a category known as "nutrients"—chemicals such as nitrogen and phosphorous, and even small amounts of excess nutrients pumped into coastal waters can set off a horrifying ecological chain reaction. The nutrients overfertilize seabeds and cause massive increases in the blooms of algae and phytoplankton. The blooms die, and decomposing bacteria depletes oxygen from the water, leading to mass kills of fish and invertebrates.

Where do excess nutrients come from? From land, usually in the form of sewage, fertilizers, and sediment. Large doses of excess nitrogen also reach our beaches from the atmosphere, and once again people are to blame: Automotive and smokestack emissions are a main source of airborne nitrous oxides.

If nutrient-based pollution sounds exotic and unfamiliar to you, perhaps you know it by more colorful names. The "brown tide" that wiped out bayscallop beds and eelgrass bays in Long Island Sound several years ago was caused by nutrient pollution. And part of the blame for the periodic "red tides" that plague seashores may lie with nutrients (other factors, such as weather conditions, contribute as well).

There is also one unavoidable conclusion: Things are going to get worse before they get better. The coastal population of the U.S. was 80 million in 1990, but will grow to more than 127 million by the year 2010. Given our dismal record in tending to the aesthetic and ecological imperatives of beaches and coastal waterways, it seems inevitable that more people will mean more pollution.

Joe Brancatelli is a travel writer who has visited countless beaches for work and play.

MICHEL TCHEREVKOFF

By David Bodanis

It's in the air: skin, stardust, radio waves, vitamins, spider legs

We seldom notice air, but there's more going on in that cubic foot of the ether in front of our faces than most of us would ever guess

When you open your eyes in the morning, what do you suppose is in that cubic foot of air directly in front of your face? Just a few dust particles suspended in the sunlight that's pouring through the bedroom windows, right? Well, guess again.

That seemingly empty cube you're looking through is a howling blizzard of bizarre matter and even more exotic radiation. You cannot see or feel any of it, but nevertheless it is all there: fragments of dead stars, hundreds of DNA-packed fungal spores and radio waves that result from live volcanoes on the Jovian moon Io, along with emanations of almost everything else that's taking place on our planet and far beyond.

Who'd have dared imagine it? A microcosm of the Universe right under your very own nose.

When it comes to being aware of our environment, we humans can be pretty obtuse. Mountains, oceans—it's hard to miss those. Big trees, mosquitoes, thunderstorms—we know when they're around. But air? Even though it's everywhere and we couldn't get along without it, we seldom notice it. Yet there is more going on in that cubic foot of the ether in front of our faces than most of us can ever comprehend.

Consider, for starters, the fast-moving molecules of atmospheric gases themselves: tiny specks spinning and pulsing before you. The atoms in these were created inside distant stars and dumped out into space in supersonic shock waves. They didn't travel directly to the part of our galaxy where Earth formed but drifted in cold space for many billions of years. Eventually, guided by the magnetic field of our galaxy, they were tugged by gravity into our coalescing planet. Oftentimes the molecules did not arrive by themselves but as parts of incrashing asteroids, comets and meteors.

Elements formed billions of years ago in interstellar space are now captives of Earth's continuous cycling.

A very few of the first arrivals have done little whatsoever in the time since they landed. The most notable of these is the element argon, several thousand atoms of which you inhale in every breath. These inert argon atoms have simply been hovering over our planet, unreactive and unchanging, meandering over the North

The atoms of carbon, hydrogen, oxygen, sulfur and nitrogen combine into molecules that enter and exit the air through ocean food chains, volcanoes, livestock, clouds, trees and—affected by them all—human beings.

Pole and back down, occasionally passing through your house on the way.

Most of what you breathe in, though, are the rotating molecules of nitrogen. Some of them still come from the supplies that crash-landed from outer space, venting up into the atmosphere from volcanoes. More, though, have long since become part of the biological web of chemical reactions, only to be released again by bacteria in rice paddies and swamps. This nitrogen has seeped past a pheasant's feet or bubbled past unconcerned fish, and then crossed oceans and continents eventually to arrive on your doorstep.

Also whirling in the air before us are molecules of oxygen. These are a little heavier than nitrogen, so they move more slowly—1,080 miles per hour, compared with the 1,150 mph or so of nitrogen. A number of the oxygen molecules entering your cubic foot of air were sprayed out from phytoplankton in Antarctic waters; it took them about two years to cross the globe. Others rose out of your garden.

Paintings by Rafal Olbinski

We exhale carbon dioxide into that cube of air, but even so, there's much less of it than of the oxygen or nitrogen. Much of the carbon dioxide came originally from the wearing away of mountains that were once deep under the seas. It has also traveled from the lungs of animals—large and small—worldwide.

Our cube contains some methane, too. This comes to us from jungles, volcanoes, swamps and those mobile bacterial-fermentation chambers we call cows. Domestic cattle alone add as much as 300,000 tons of methane to our atmosphere each day.

Some of Earth's original water is still floating loose in the air around us. It's constantly recycled. Much of what we breathe in today reentered the air after spending a thousand years flowing silently along the ocean bottoms from poles to Equator.

Primordial waters from deep within

The recycling is not entirely perfect, however. Some water vapor floats high in the atmosphere, where the molecules are split by sunlight. The oxygen stays in the atmosphere, but the hydrogen atoms are fast and light enough to escape into space. The oceans are still safe, nevertheless, for water is constantly replaced. Some of it is from supplies that crashed too deeply inside Earth to have entered the oceans immediately thereafter; the steam that belches forth from today's volcanoes includes that old water. At least some scientists suspect that our planet may be receiving new water from tiny, ice-rich comets that still rain down on Earth.

Other compounds are present, too, in even the purest, most unpolluted air. Ammonia, sulfur dioxide and formaldehyde will be there along with naturally occurring carbon monoxide and oxides of nitrogen. All these molecules in the air of our cube occupy only a small part of it. If each were, on average, ten feet wide, there would be gaps several city blocks long separating them. Between the individual molecules of the air there is just the icy vacuum of empty black space. It usually doesn't feel icy to us only because the molecules that are present constantly batter against us.

Yet even these great voids inside our cube, these tendrils of the empty vacuum looping down to us from outer space, are not entirely empty. They, along with the rest of the cube, are permeated by electromagnetic radiation: everything from radio waves and microwaves through infrared, visible light and ultraviolet rays to the x rays and gamma rays. It's hard to visualize this. You shouldn't think of tiny flecks of matter but, rather, of quickly moving waves in which electric and magnetic fields are sinuously bundled together. Some of the most interesting radio waves are about eight inches from wave crest to wave crest as they whip past at the speed of light. These come from distant gas clouds, often in the far-

A leisurely conversation can result in a veritable downpour of 300 or more saliva droplets per minute.

thest spiral arms of our galaxy. The hydrogen atoms in these dim clouds have collided with one another and been pumped into unstable shapes, and then they spurted loose their energy as they returned to normal.

Other electromagnetic radiation reaches us from wherever a collision or explosion has compressed gases at such high temperatures and pressures that they release energy in the form of radiation. These waves come from the wildly hot gas coronas around distant stars. Some, a bare one-twenty-fifth of an inch from crest to crest, have been traveling since just after the Big Bang. Then there is radiation from closer sources, such as Jupiter and its volcanic moon Io. Through a complex process, charged particles from Io's eruptions interact with the planet's magnetic field and are emitted as radio

David Bodanis, author of The Secret Garden *and* The Secret House, *lives in London, England, and teaches social theory at Oxford University.*

Woe can befall those caught in the spray from even a brief sneezing fit, as thousands of viruses may fly.

waves, shorter versions of those crashing waves that reach us from the Sun.

You can actually hear some of the cosmic commotion of these waves as you tune your radio, for the static between stations is, in part, their amplified signal. The different kinds of electromagnetic radiation that humans generate join them. Zipping through that cube of air in front of our faces are faint and distorted radio signals from almost every radio and television station on Earth; there are the signals of taxicab dispatchers, of 747 pilots, bits of chatter from cellular phones, and even Morse code bursts from distant ships.

Sound waves do not carry so far. They are brute movements of the air molecules themselves, and the energy required to push the molecules around will quickly chew away the refined shape of the sound wave. All the words a fast-talking disk jockey says are quickly lost in the random bumper-car motions of the air molecules. This short lifetime has been important in the history of music in the Western world: if an echo takes more than one-twentieth of a second to become inaudible, then it will usually interfere with the next sound made. Early music was played in medieval cathedrals. The stone walls were poor at soaking up sound, so each note bounced around for much longer than the requisite time, and the only music heard clearly was simple intonings—Gregorian chants. As buildings came to be constructed with more sound-absorbing materials, music got more complex.

Along with all the electromagnetic radiation and all those air molecules flying around, larger things are actually hovering in place in the air cube before us. This is possible because air molecules batter against objects in such numbers—a high-speed *bump-bump-bump-bump* from all directions—that they form a constantly gusting microwind. If something is light enough, it will be suspended, bobbing in place, as if on a buoyant sea. For life-forms much smaller than us, it's an ideal open ocean through which to migrate.

Ancient behemoths of the pollen world

Pollen is usually small enough to use this expanse, at least to drift away from the plant that produced it. If there are pine trees within a mile or two of your house, some of the most ancient forms of pollen will float by, in season. These are bulky behemoths, a whopping 75 microns or more in length (a micron is one twenty-five-thousandth of an inch). Air bladders keep them aloft.

Grasses and other higher plants produce smaller pollen; the smaller the grain is, the farther it is likely to float. Unfortunately for hay-fever sufferers, this strategy has proved so successful, in an evolutionary sense, that a great many plants produce these tiny pollen grains, which raise havoc in many an allergic nose.

Even more plentiful, forming a great drifting fleet around us, are the still-smaller fungal spores. Usually there will be several hundred in every cubic foot of air, far outnumbering any other living things. True masters of the aerial sea, all have food supplies packed inside, and tough, water-resistant hulls. Some are sun-blackened from their great journeys—a few will have reached the altitudes of commercial jetliners before sinking back down. Their invisible clouds, held up by the air's tumult, have been floating and migrating around Earth even longer than the pollen.

Should a raindrop fall through our cube and then be caught for analysis, we would find that it contained bacteria and algae, as well as a variety of naturally occurring chemical compounds including vitamin B12 and niacin.

Smells, or shall we say scents, are floating through our cube of air all the time. A particular scent is actually a molecule of a specific shape. We smell it when these molecules land on and are recognized by receptors on

A pointer's sense of smell, more acute than a human's, allows it to detect prey from a few scent molecules.

the olfactory nerves in our noses. Such molecules are given off in steady streams by percolating coffee, for example, or a film left by a splash of aftershave or something that's been in the back of the refrigerator a little too long. Most humans pay little attention to most smells. They get some idea of what they are ignoring when they see a dog suddenly freeze and stand stock-still, its nostrils moving as it palpably analyzes all the molecules in the cubic foot of air into which its snout is poking and to which the breeze is continuously bringing fresh intelligence.

Along with the objects that have evolved to loft, waft or evaporate into the air, there are an even greater number that end up in the air around us entirely by chance. Surrounding us in our house, and especially as we walk out the front door, are skin flakes, soil fragments, bits of pet fur, broken-off leaf hairs and, in surprisingly large numbers, tiny, amputated insect limbs. Spider legs, or at least shattered bits of them, are especially common, for spiders don't have extensor muscles on their legs and have to walk, robot-style, by hydraulic blasts of fluid into their hollow limbs. It's an ingenious but fragile system. At 20 microns, none of this detritus stays up for long—a few hours at most, depending on the air currents. Eventually it becomes a major part of the dust that settles on us as we go about our daily lives.

Move down the scale of sizes, to the two-micron level and smaller, and the wild air molecules create a world of constant gales, enough to support objects that may have drifted into our cube from a continent away. There will be salt crystals from ocean whitecaps, dust scraped off distant mountains, microbits of magma blown from volcanoes and charred microfragments from tropical forest fires. This planetary debris builds up to a density of many hundreds of particles in each breath we take.

At the office, the aerial debris doesn't go away, especially if there's been a janitor vacuuming before everyone gets in. By doing so he will have been bursting open the microlayer of stagnant air that rests at the very bottom of the carpet fibers. Normally, that layer traps the tiniest stuff that might have been traveling in the air, keeping it safely out of our path. Now, though, it gets sprayed up into the room, for vacuum cleaner bags aren't solid things but are made of heavy fabric or waxed paper that usually has gaps of at least five microns between its fibers. Anything smaller than five microns just flies through.

Most disastrously, the vacuuming flings about the colonies of microscopic dust mites living in many office carpets. Their delicately named "anal pellets" are larger than five microns to start with but are prone to shatter as they get pulled into the vacuum cleaner. If there's a receptionist inclined to kick off shoes under the desk and rub stockinged feet over the carpet, or if you work in an office where there are expensive wool carpets (wool really holds the moisture that mites require), then there will be millions of the fragmented pellets waiting for you in the microhaze. As those pellets contain digestive enzymes from the inside of a mite's gut, it's no surprise that many people are irritated by their floating presence. This pellet-packed haze is joined, of course, by occasional ozone clouds from fax machines being started, as well as wafts of formaldehyde from the backings of any new carpets.

Shedding what we so carefully apply

All of this is only the beginning, however, for the other debris producers, the truly mammoth, clanking, air-roaring machines—your fellow office workers, that is—have only just begun to arrive. The problem is that we humans are delicate creatures, with substantial bits of us constantly sloughing off. At first it's just the surface things we've put on to cover and adorn our bodies. From the start of the day, cosmetics crumble and great talc slabs tear off and float loose. Fingernail polish evaporates, and clothing fibers get scraped loose too.

Pretty soon it's our skin as well—many thousands of skin flakes skid from us each minute. Sweat particles and leftover soap fragments join them, working their way through small gaps in our clothes. Then there's the microlife: scalp creatures, hair yeasts and often even foot and other fungi. Because our bodies are also engines that use air for exhaust dispersal, there's the stagnant carbon dioxide we breathe out, as well as the streams of methane and hydrogen sulfide bubbles we vent, too. The great heating coils of our blood vessels

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The goings-on in a cubic foot of air

ensure that constant gusts of warmed air rise from our bodies with enough power to lift chunks of clothing, skin and cosmetics as big as 50 microns across, so almost everything gets a huge altitude boost.

Then there's saliva.

A human body is about 60 percent water, so even for those of us who aren't splutterers, a lot is going to spray loose. The average is about 2.5 saliva droplets per word, so a few hours of cross-desk chatting, even at a lazy 30 words per minute, can still sling out 15,000 droplets per person. These become floating islands of about 15 microns and are liable to spend an hour or more bobbing around before sinking. Most have only harmless mouth bacteria in them, but a number will have more dangerous types of staphylococci, and if there's been the catastrophe of a sneeze anywhere within yards of you (output per sneeze: one million or more soaring droplets), then viruses may be floating around. These can remain viable for a half-hour or longer.

If you could open the windows and get rid of all this gunk it wouldn't be too bad. But many offices keep the windows closed, and often—to save money—only 10 percent of the air inside is replaced on each cycle of the building's air-exchangers. The rest of what you breathe comes from those drifting clouds made up of bits of your office mates. Air-duct filters help, but even these are rarely cleaned as often as they should be.

There's a similar problem on airplanes, although it's only a recent one. Before the mid-1980s most airlines pumped in 100 percent fresh air about every 22 minutes. Since then, they've recycled roughly half, again to save money. The levels of exhaled carbon dioxide are not dangerous but build up quickly and make many people uncomfortable. Colds and other airborne ills are also spread more easily. It's especially a problem in economy class, where the close seating means you'll get only about 7 cubic feet of clean outside air each minute. First-class passengers, by contrast, luxuriate in 50 cubic feet of fresh air per minute, thereby receiving a more diluted mix of what their fellow passengers gust out.

Such indoor-air buildups are a problem not only at work or on a plane. Back home, as you're having dinner, you will be exposed to many of the same "office products" as well as additional ones. A gas stove, for example, is hot enough to burn and combine some of the nitrogen and oxygen that floats around its flames. For a moment the mix hovers a few feet above the stove. But if there's a breeze, it joins with more oxygen to become nitrogen dioxide. That can mix with water vapor in the air we exhale to become nitric acid. Soon, though, this mixture breaks down further to become wisplike clouds of ammonia, hovering in the air in front of our faces.

Sulfur compounds are steadily released in our homes, too—from cans of orange juice (sulfur dioxide is often pumped in as a preservative), cardboard boxes or rubber bands, or even from that old wool jacket. Some of these compounds mix with the vapor in our noses to briefly produce a mini-rainfall of sulfuric acid. Most of the rest stream away to conveniently adhere within an hour or so to any slight film of moisture in the house.

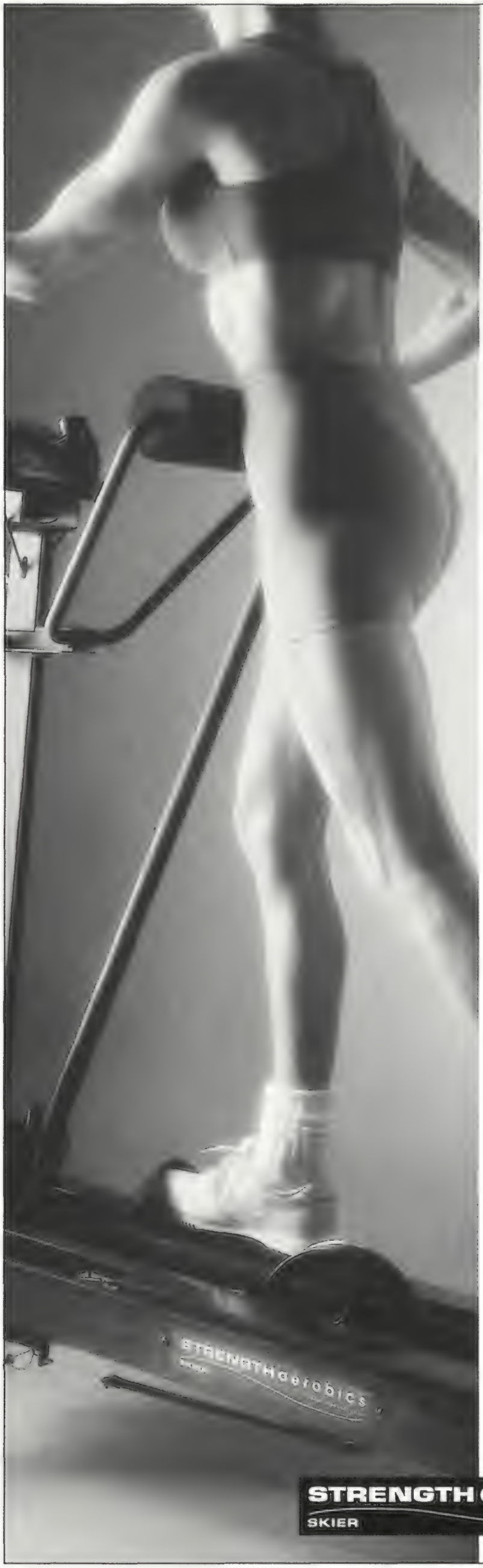
Opening the windows will clear most of what remains of the sulfur compounds. This can be especially important if there's also been much radon gas trickling in from the walls or foundation of the house. Some natural radioactive elements break down as harmless, ultra-miniature firecrackers of antimatter in front of us. But radioactive particles capable of pumping out damaging alpha rays can also decay to become lead or other metals in our lungs.

A few radioactive particles produced from nuclear tests decades ago may also be floating in that cube of air before us. And there are small amounts of radioactive carbon. That is produced in the upper atmosphere when high-speed electrons or bare nuclei arriving from distant supernovas and other sources (the stuff we call cosmic rays) shatter air molecules. Thousands of neutrons, as well as other types of subatomic particles, pass through our cube (as well as ourselves) every minute.

As dusk falls, so does pollution

When you're outside, resting in the garden chair with the last of the day's reading light almost gone, the air begins to clean itself. Particles of pollution get hit by water vapor rising from the lawn and begin to stick together. As they grow heavier, they fall from the sky. Bacteria in the soil around the roots of grass digest much of what lands; the blades will also soak up gallons of carbon monoxide from passing cars.

As another cleanser, the floating scavenger molecules called hydroxyl radicals whiz hurriedly all around your garden, even in the air above your chair. Any carbon



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monoxide molecules they strike hard enough react to form harmless carbon dioxide and hydrogen. Methane also gets broken up by hydroxyl radicals. Humans can sometimes add to the air's cleansing, for any late rays of the Sun that hit the puffs of water vapor we breathe out, or that evaporate from our skin, will produce yet more of the scavenging hydroxyl molecules.

If pollution levels aren't too bad, these automatic cleansing processes will do a great deal to give us back the simple oxygen and nitrogen atmosphere our planet evolved. In time, after we've breathed out those molecules and sent them on their way, they'll return to the plant or bacterial sources that recycled them before we did. But after that—at about the year 4000 for most of the oxygen and the year 2000000 for the nitrogen—they'll be out again, creating a volume of air as rich and loaded with ancient life-forms and extrastellar radiation packets as always, drifting here and there across the globe until, one evening, a few quietly make it to this same spot where once you sat breathing.

As you watch the twilight from your backyard chair, pollutants—gases and particles—are constantly being cleansed from the air by plants, hydroxyl radicals and water vapor, including that in each breath you exhale.

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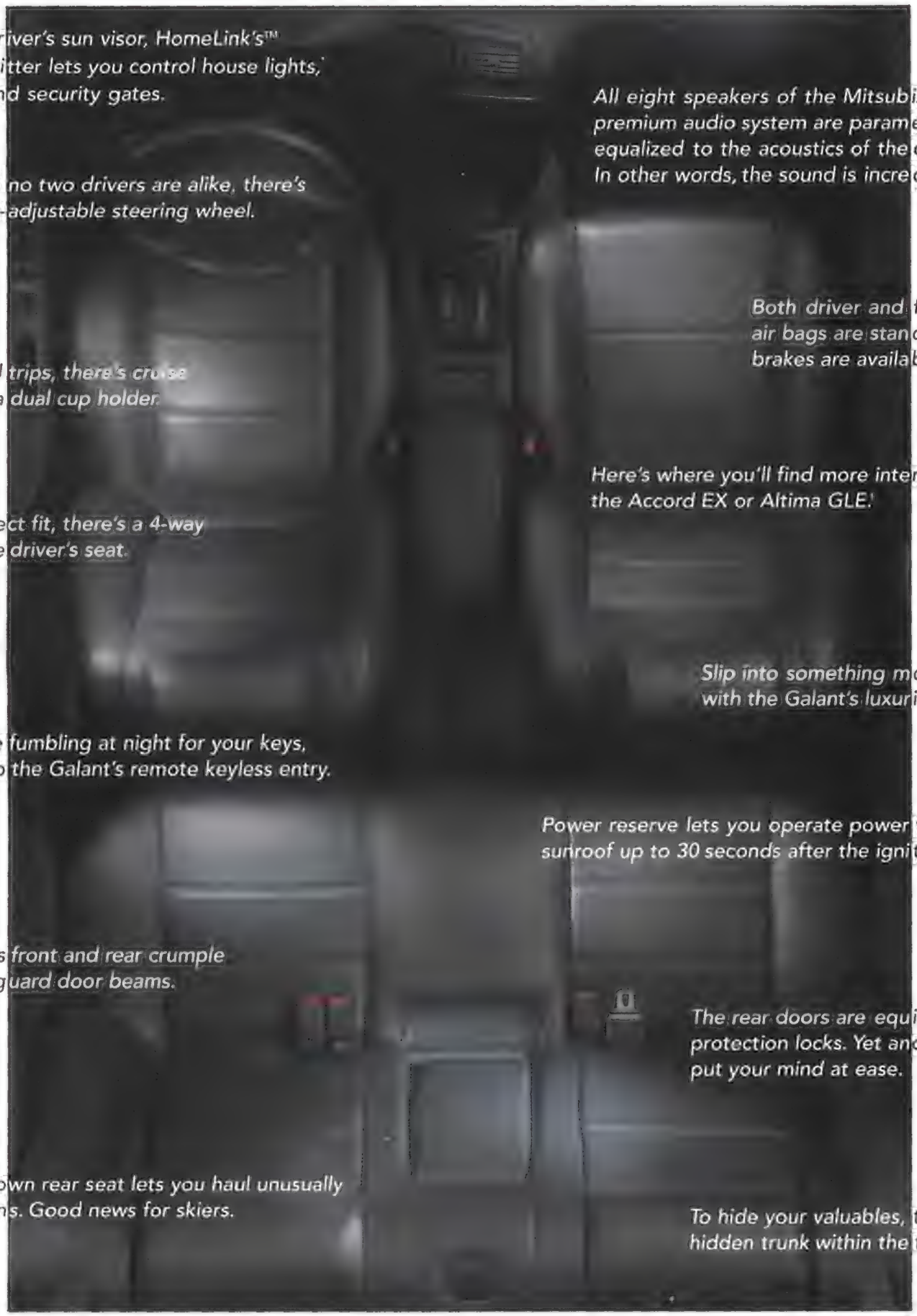

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Photographs by Theo Westenberger

If you can't bear to part with it, open a new museum

Because the chances are, if you love your Mario Lanza albums or your old skate key, there are others who feel the same way

Everybody knows about the Smithsonian's National Air and Space Museum; it's one of the most popular museums in the world, with more than eight million visitors annually. Most people know about the National Museum of American History, too, located a little farther down the Mall. Other famous museums include Chicago's Museum of Science and Industry, with its walk-through beating heart, and the American Museum of Natural History in New York City, where the dinosaurs roam. But the Mario Lanza Museum in Philadelphia? The Sci-Fi and Monster Mansion in Hollywood, California? The Roller Skating Museum in Lincoln, Nebraska? From the Dog Mushing Museum in Alaska, to the Mustard Museum in Maine, to the Shipwreck Museum just above Paradise, Michigan, there's not too much that has escaped the curatorial eye.

In all, there are more than 8,000 museums in the United States, most of them unknown to most of us. But that doesn't mean they're unimportant. Museums, little and big alike, are the places where we keep the things that matter to us. No matter how obscure or specialized or seemingly preposterous they may be, they reveal something about our times and our national character. So hats off to museums large and small, famous and unknown, offbeat and off-the-wall. The seven far-out institutions profiled here (see page 167 for their addresses and phone numbers) prove that, in this country, if someone is interested in something, sooner or later they'll probably dedicate a museum to it.

Constance Bond

Rough and Tumble Engineers' Museum

Old steam engines, threshers, balers, gas tractors—they all run at the Rough and Tumble Engineers' Museum in Kinzers, Pennsylvania. When the 47th Annual Threshermen's Reunion is held this August, the place will come alive with an old-fashioned cacophony of whooshing, whistling and clanking. Point a finger at a piece of machinery, and one of the folks standing around in oil-stained overalls will tell you all about it. The phrase "rough and tumble engineers" was used in an old farmer's manual to describe men who could fix anything with a little spit and baling wire. Some of these folks still fit the mold.

Ice House Museum

Here's a place that reminds us how far technology has come in one lifetime. The Ice House Museum in Cedar Falls, Iowa, brings back a practice that carried well into the 1930s: supplying the nation's iceboxes. The docents, many of them retired icemen, remember when this building stored more than 6,000 tons of ice. In winter, 300-pound blocks were cut from a nearby river with saws, then dragged by horses to a conveyor that fed them into the building. All year, the icemen would come calling six days a week in horse-drawn wagons, weigh out a load and deliver it. No exercise machines for them.

The Surfing Museum

Santa Cruz, California, lies next to some world-renowned surf, much of it within view of the Mark Abbott Memorial Lighthouse. Inside that tiny brick building is a collection of vintage wooden surfboards that predate the Beach Boys, old Brownie snapshots and even the shredded wetsuit of a surfer who survived a shark attack. It's called "the world's first surfing museum." If you want to know about the early days, ask volunteer Pinky Pedemonte, maybe, or Rich (Glass Eye) Thompson. Now in their 70s, they're original members of the Santa Cruz Surfing Club, and they still paddle out now and then.

Miles Musical Museum

The Miles Musical Museum, just west of Eureka Springs, Arkansas, is stuffed chock-a-block with machines, big and little, that tweetle, ting, oompah and bombombom all by themselves. It's a family-run operation, and Floyd Miles or his daughter, Marlene, will fire up everything from a skating-rink Wurlitzer organ (above, right) to a Coinola Nickelodeon. The nickelodeon's innards, explains a hand-lettered sign, are "Indian blocks, triangle, mandolin, tympani, snare and bass drums, cymbals and piano." It once pounded out the "Alley Cat Rag" at a brothel owned by the daughter of Jesse James' sidekick, Belle Starr.

Mario Lanza Museum

Tucked inside Philadelphia's bustling Settlement Music School, the Mario Lanza Museum is filled with paintings, photographs, movie posters and album covers—all bearing the once-famous tenor's dazzling smile. Lanza, who died in 1959, was the poor Italian kid with a million-dollar voice, the burly piano mover who became a star. During the late 1940s and early '50s he made *The Great Caruso* and more than 250 recordings (everything from arias and love songs to *The Student Prince*). Naturally, the half-dozen or so devotees who tend this shrine make sure that Lanza's voice is always singing.

The Sci-Fi Monster Museum

Several times each month, sci-fi and monster-film aficionado Forrest Ackerman (with his ghoulish gang of movie-makeup replicas, above) holds open house at his Hollywood Hills mansion. A well-worn path in the lime-green shag carpet leads past an array of masks, books (275 editions of *Frankenstein* alone), file cabinets filled with movie stills (*Cobra Woman*, *Congo Bill*, *Creature of the Walking Dead* . . .), and artifacts from films. Conducting tours, Ackerman absentmindedly fiddles with a heavy ring with an embossed D on his left hand. Even the ring has a history: Bela Lugosi wore it in *Dracula*.

Roller Skating Museum

Talk about your grand entrances. In the 1760s, London inventor Joseph Merlin roller-skated into an elegant party while playing the violin and crashed into a mirror. He damaged himself and the mirror but secured a place in history, for this mishap is documented at a small museum that shares quarters in Lincoln, Nebraska, with the U.S. Amateur Confederation of Roller Skating. Assisted by curator Scott Wilhite, you'll find the set of wheels from your own childhood, along with old photographs, trophies, costumes, motorized skates, patent papers and—almost forgot!—those nifty old skate keys.

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Always wear your seat belt.

By Patrick Breslin

On these sidewalks of New York, the sun is shining again

Everybody's heard about the bad-news Bronx, but few realize there has been an amazing turnaround. Welcome to the good-news Bronx

My family left the South Bronx in 1960. It wasn't called "white flight" then, but we were fleeing. Our neighborhood, once blue-collar Irish, German, Italian and Jewish, had become principally Puerto Rican and poor. Due largely to the influx of drugs, the rates of crime and violence were rising. One friend's family left a couple of years before we did, after a flaming mattress thrown off a tenement roof landed a few feet behind them as they stood on the sidewalk. Another friend's family stayed a while longer, but they were "moved" by burglars who cleaned out their apartment three times before they finally decided to leave under their own power.

By the 1970s it was High Noon on the South Bronx streets, with drug dealers shooting at one another in broad daylight. As the exodus, now largely Puerto Rican and African-American, continued, the infrastructure started to come apart. Landlords, too, began to leave, many of them torching their buildings for the insurance money as a parting gesture. The banks and insurance companies left. More and more buildings burned, and then wrecking balls and bulldozers knocked down the hollow hulks. President Jimmy Carter came in 1977 and stood on the rubble at Charlotte Street and said something should be done. Then he left. Three years later, candidate Ronald Reagan came and stood on the same rubble. He left too.

The South Bronx was the place almost everyone left. By 1980 it had become ground zero of the most devastated urban area in the United States. That is the perception many people still have of it today. Few know

In a painting inspired by this story, famed New York artist Ralph Fasanella celebrates South Bronx rebirth.

Fancifully blending old and new, the scene depicts a family moving in (left) and kids playing on city streets.

Painting by Ralph Fasanella

Jimmy Carter Library

In the fall of 1977, President Jimmy Carter visited Charlotte Street with Abraham Beame (right), the mayor of New York, and Patricia Harris, Carter's Secretary of Housing and Urban Development.

how it got to be that way; even fewer realize there's been an amazing turnaround.

This is a story about the rebirth of a neighborhood—much of it happening within ten blocks of where I grew up—and about the people who didn't leave, who stayed and struggled. Against all odds, they are making the South Bronx once more a place where immigrants can get a grip on the American dream. Now, because of their efforts, government agencies and banks and insurance companies are coming back. Thousands of new housing units have risen from the rubble. Libraries bustle with students. Private foundations are pouring money into development plans designed by local people. A vibrant new community is emerging from the ruins of four decades of wracking social changes, misguided urban policies and the scourge of drugs.

New York City's only mainland borough (the other four are all on islands), the Bronx is separated from Upper Manhattan by the Harlem River. In the 19th century wealthy New York families maintained rural retreats there. A Bronx ironworks built the dome for the U.S. Capitol. The Bronx Zoo sheltered survivors of the buffalo herds then being slaughtered out West.

In the 1920s block after block of six-story brick apartment houses were being laid out in the Bronx, linked to Manhattan by the new elevated electric-train lines. My parents arrived separately from Ireland, found work, married and settled down in a five-room apartment. Outside the fourth-floor windows, the rapid-transit cars screeched around a curve and into the Simpson Street station. The noise filled our days, so much so that when we got a chance to spend several weeks on an isolated farm in upstate New York in the early 1950s, my mother couldn't sleep for the silence.

Gritty and bustling, the Bronx was a borough of safe, stable neighborhoods in those days. The prevailing ethic was the immigrants' belief that their hard work would make a better life for their children. For a time after World War II that expectation was borne out as the Bronx enjoyed something approaching a golden age. Those were the years the Bronx-based New York Yankees dominated the World Series, and Bronx political leaders helped put John F. Kennedy into the White House. Yet just when the borough seemed at the pinnacle of success, the waves of change that would overwhelm it were already starting to crest.

Patrick Breslin, who lives in Washington, D.C., has written previously for SMITHSONIAN *about flea markets, Mayan culture and Irish storytellers.*

Photographs by Camilo Vergara

Michael Evans

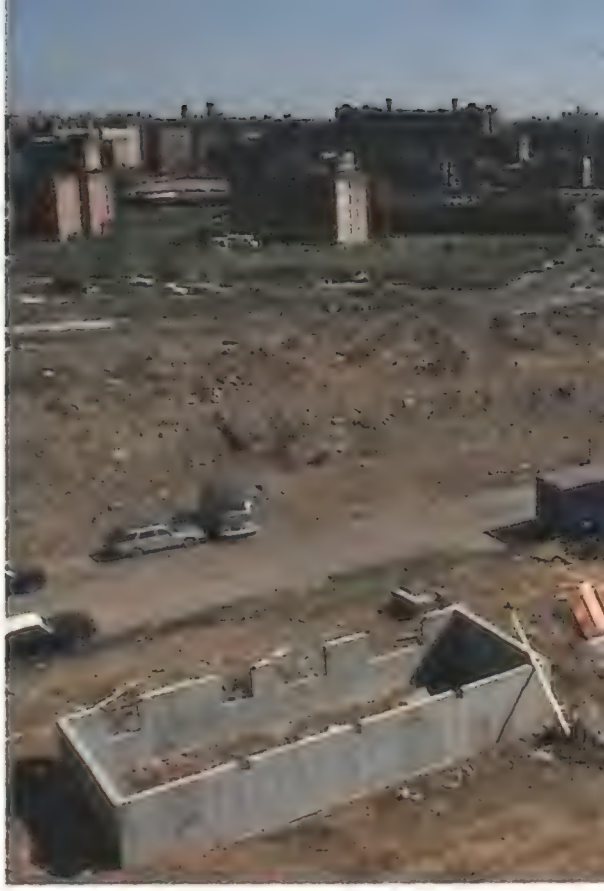
Ronald Reagan made a 1980 campaign stop in the vicinity. A year later (left) the devastation remained.

Cities are where most of society's problems go to happen. After midcentury, New York, like many of the nation's metropolises, had to face up to a shrinking tax base, a devouring automobile culture, a breakdown in family structure, racial tension, crime and drugs. In the Bronx, perhaps the most important change was economic. The borough was built on access to high-wage jobs in Manhattan, but after the war, industries in search of cheaper workers started to leave. When thousands of job-seekers from the rural South and the Caribbean arrived in the 1950s and '60s, the jobs were going the other way.

Partly as a result, the political machinery started to break down. The old Democratic Party that had extended a helping hand to previous waves of newcomers failed to provide the same welcome now. The Bronx was a borough of renters, and the rent-control measures adopted during World War II seemed politically impossible to end when the war did. Ceilings on rent enabled many landlords to justify the deterioration in services and maintenance on their buildings. They started splitting apartments into smaller units. When my parents were paying $45 a month for five rooms, I knew other families who were paying $125 for half the space. Racism and prejudice drew their dividing lines. "The element" was the euphemism in my family for Puerto Ricans. Out on the street, "spic" was a fighting word, as "mick" had been a generation earlier for the Irish.

There were other pressures. The imperious Robert Moses, who from appointed office controlled most public-works projects in and around New York for decades, cleared slums in northern Manhattan without providing adequate housing for the people he displaced. Many of them flooded into the Bronx. Moses also rammed the Cross-Bronx Expressway through thriving neighborhoods, evicting thousands more.

Any one of those disasters would have been enough to shake an urban area. It was the Bronx's particular misfortune to experience them all at once. As early as the mid-1960s the southern part of the borough had embarked on a seemingly irreversible decline, and as the devastation spread, the term "South Bronx" was used to describe an ever-widening area. People reached into the past for images to describe the desolation. When someone shot an arrow into the Police Department's 41st Precinct headquarters on Simpson Street, or so the story goes, the police began calling it "Fort Apache." Later, as the city continued razing the neighborhood, the building became known as "the little house on the prairie." Captain Harvey Katowitz, who is retiring this



Views of identical Charlotte Street area in (from left) 1981, 1984 and 1994 dramatically illustrate the kind of transformation that community groups like Banana Kelly and the Mid-Bronx Desperadoes have pulled off.

year as commander of the 41st, recalls drug searches and arrests where crowds turned hostile. "Sometimes we literally had to fight our way in and out of the buildings. There was tremendous distrust."

The 1981 Paul Newman movie *Fort Apache, The Bronx* conveyed those appalling images to a worldwide audience. Tom Wolfe's 1987 novel *Bonfire of the Vanities* further underscored the borough's reputation as a lawless wasteland. But among the ruins there remained survivors who hadn't given up.

Last year, intrigued by a few newspaper stories which suggested that things were improving, I went back. I'd been far away, and a long time gone. I'd lived in several Latin American countries, where I learned to respect the struggles of poor people to improve their lives. Now, if what I had been reading was true, a similar struggle was going on in the Bronx.

Jillian Immanuel, 11, studies at dining room table in town house her parents bought on Vyse Avenue in 1991.

You don't see the improvements at first, as you drive out of Manhattan over the Harlem River and then under the noisy Bruckner Expressway. The Bruckner sits atop a thicket of concrete pillars, and you head into the Bronx on a narrow road that winds through them. It's a nice spot for mayhem under there, dark and gloomy, strewn with garbage and broken bottles.

A few blocks farther on, the changes start. The blocks of apartment houses here are not the burned-out hulks of a dozen years ago but occupied buildings with curtains on the windows and people pushing baby carriages in front. Then come streets neatly lined by new two-story houses with well-kept cars gleaming in the driveways. Many of these houses have lawns and gardens and window boxes planted with flowers.

At Charlotte Street, where politicians once posed before a backdrop of ruined tenements, the horizon now opens low and wide over a spreading delta of single-family houses with iron and brick fences around the bright-green lawns. Some of the houses have wooden decks off the back, complete with barbecues.

These views are disorienting; they clash with my memories. As a kid, I played stickball on narrow streets, between rows of tenements. The sky was something you looked straight up to see, a narrow band of blue or gray hemmed in by the buildings. Now there's more sky, the horizon is lower and farther away. Often, you can see all the way to the bridges, the span of the George Washington to the west, the high humpback arch of the Throggs Neck to the northeast.

Curious about the people who are living here now, I

Work progresses (above) on foundations laid in 1983 for 89 private, single-family homes. Now occupied and known as Charlotte Gardens (right), the landscaped neighborhood looks more like a leafy suburb than a city.

dropped in on Alexandra Immanuel, a tall, graceful woman with a Caribbean lilt in her voice. Originally from the island of St. Lucia, she lives with her husband, Isidore, and five school-age children in one of the new houses on Vyse Avenue, around the block from the parochial school I attended. The first floor of her tidy home has a carpeted living room with new furniture, a dining area, a kitchen and stairs going up to the bedrooms on the second floor. Out back is a fenced-in yard.

Alexandra was a girl of 14 when she came to this neighborhood in 1971, and she lived here with her mother and sister throughout the 1970s—"the worst years," she told me. "Buildings were rundown. We couldn't go out. There was a feeling of despair. I felt like a prisoner in my own house."

Still, she made it through high school, started nursing school and married Isidore. The Immanuels were paying $715 a month to rent an apartment in public housing in 1991 when they saw a sign advertising new houses for sale in the Bronx. They did the numbers, discovered they could handle the cost and applied to the local community organization that sponsored the new housing. After undergoing intensive interviews, filling out the usual purchase paperwork and coming up with a down payment, they moved in. "The kids love it," Alexandra told me. "They can play in the yard, and I don't have to worry. The neighbors are good. Everybody looks out for each other."

Thousands of Bronx families like the Immanuels have been helped into new or rebuilt housing by community-development corporations, a grassroots approach to problem-solving here that has much in common with similar efforts mushrooming all over the world. In the South Bronx this process started with Father Louis Gigante, a Catholic priest who grew up in Greenwich Village, worked in Puerto Rico and then in the early 1960s came to St. Athanasius, in the Longwood section.

At that time, Great Society programs were pumping federal aid into America's cities, and a lot of it went to the Bronx. Various community leaders and organizers sprang up to take the money, but sometimes all they did with it was provide jobs for their friends and supporters.

Father Gigante wanted to see more concrete results. He became a blunt spokesman for the poor people of his parish, leading many of them to Manhattan for in-your-face protests to city officials. But his master stroke was the Southeast Bronx Community Organization (SEBCO), the activist group he founded to give local people a voice in rebuilding their neighborhood with

Dominic Martinez, a college freshman, stands outside his mother's home in a restored area on Boston Road.

Father Bill Smith, who works with a community group, talks with a parishioner near a new housing complex.

Now the deputy borough president, Genevieve Brooks was a cofounder of the Mid-Bronx Desperadoes.

funds solicited from private foundations as well as government agencies. "That was the first community-based corporation, the one that got the whole thing going," according to Father Bill Smith. Father Smith was the pastor at neighboring St. John Chrysostom, my old parish, for 24 years before moving to St. Athanasius in 1985 to succeed Gigante. "Gigante was the catalyst, and he brought the others along."

SEBCO, which Gigante still runs, rebuilt and refurbished much of the housing around St. Athanasius and became the prototype for a score of similar organizations. Two of the most important ones in my neighborhood were the colorfully named Banana Kelly and the Mid-Bronx Desperadoes, the group that helped the Immanuels get their home.

You can trace just about any of these groups back to one person. For the Mid-Bronx Desperadoes, that person would be Genevieve Brooks. A wiry woman of limitless energy, Brooks is now the second-term deputy borough president of the Bronx, but her roots go back to the farming community of Anderson, South Carolina.

Brooks was 17 when she came to New York City to live with her uncle. She later moved into an apartment on Seabury Place, near Charlotte Street. Soon she noticed that the marble trim in the building's hallways wasn't being cleaned. When she complained to the landlord, he told her that she was the only one who had a problem and suggested that she move to Queens or Park Avenue. Instead she helped form a tenants association, and after that things started to improve inside the building. Outside, the hulks of burned-out cars stayed on the streets for weeks and drugs were being dealt openly. Brooks and her neighbors formed a block association and tried to get the city to clean the streets, pick up garbage and provide more protection. Nothing happened, so they began to do the work themselves.

"People thought we were nuts," she recalls. "We started sweeping our own streets, we went into the backyards and pulled the garbage out." After that, Brooks just kept right on going. She started a child-care center, worked on voter registration and got appointed to the community planning board. Eventually Brooks, Father Smith and representatives of nine local groups put a new organization together to work on a 100-block area's common concerns. When the organizers were choosing a name, someone observed that they were "desperate" about the problems they faced, and so the Mid-Bronx Desperadoes was born.

Not far away from the community served by the Desperadoes, high on an apartment house wall overlooking a small park you can see a brightly colored relief sculpture of four children playing jump rope. Artists John Ahearn and Rigoberto Torres cast the sculpture a little more than a decade ago as part of their "homage to the people of the Bronx." Similar street scenes celebrating

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In 1988 the land on Brook Avenue was vacant but for a school (left) that had become an apartment house.

In less than six years the same land was packed with new dwellings, including a number of small family homes.

the neighborhood's people grace tenement walls nearby. Behind the jump-rope sculpture a block of Kelly Street makes the smooth curve that inspired the name of that other organization, Banana Kelly.

Back in 1977 no one was celebrating the people of the Bronx. That was the year the city sent marshals and demolition crews into this same neighborhood to take down three tenement buildings. Some 30 families were living in those structures, and they had already started to fix them up. Facing eviction, the families resolutely formed a human chain around their buildings, and with reporters at the scene, the city decided to back down.

Flushed with success, the victors incorporated their organization as the Banana Kelly Community Improvement Association. With publicity and official recognition came access to loans from government programs and a New York bank, and the rehabilitation of the three buildings was completed. In the process, Banana Kelly director Yolanda Rivera told me, "we learned construction, we learned management, finances. We learned everything ourselves because we knew we wouldn't be able to afford to pay consultants to do it for us." They decided to keep right on building, block by block. Their motto: "Don't move. Improve."

Throughout the 1980s, both Banana Kelly and the Mid-Bronx Desperadoes worked hard to prevent further destruction of existing housing and to build back over empty lots. If organizing had given them clout, the progress they made on their own gave them something equally important—credibility. Downtown, where the power and the money have always been in New York, people started listening. The city, which had seized many abandoned buildings for taxes, began turning them over to community groups and providing loans for rehabilitation. The groups lobbied banks and insurance companies to do business in their neighborhoods again. The nonprofit Local Initiatives Support Corporation (LISC), which was created by the Ford Foundation to operate nationwide as a bridge between communities and corporations, helped persuade businessmen that there was indeed money to be made investing in poor urban neighborhoods.

The key to LISC's ability to lure private investors is a federal tax credit for low-income housing. Since 1987, thanks to that credit, LISC has been able to raise nationally more than $950 million in investment funds from 106 corporations. Some of that money was used to help finance nearly 2,000 new or refurbished housing units in the Bronx, a fourth of them in projects sponsored by Banana Kelly and the Mid-Bronx Desperadoes. Even before LISC got into the act, the city government—convinced that the tide was turning in the South Bronx—had already committed $4.2 billion for a major housing effort there.

Over the past two decades the Mid-Bronx Desperadoes have helped build or restore more than 2,000 residential units, including the 89 houses in Charlotte Gardens. Banana Kelly has grown from its original three tenements into a freewheeling organization that manages 45 buildings containing more than 1,000 living units. Another 1,500 units it helped build are cooperatively owned. But it takes more than housing to create a community.

In many cities, slums have been resurrected by "gentrification," with well-heeled buyers snapping up buildings at bargain prices and restoring them. In the South Bronx, it's the poor who are getting a chance to own a piece of the action. From the beginning, according to Yolanda Rivera, "the promise was made that the community would be rebuilt for the people who stayed."

Banana Kelly and the Mid-Bronx Desperadoes wanted

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Lifelike figures adorning a wall in the Banana Kelly neighborhood symbolize the Bronx's new upbeat spirit.

tenants who had a sense of responsibility. They screened the people who applied to move into their buildings, and they took the time to visit with families like the Immanuels. "I interviewed every family before they moved in," Genevieve Brooks recalls. "I wanted to see how the parents related to the children, and what the children's goals were." She was looking for people who would strengthen the neighborhood. Once it was rebuilt, she didn't want it sliding down again. "I was brought up on a farm where you kept your yard, your house, your surroundings clean. Litter and abandonment—that was foreign to me."

Marc Jahr, a program director at LISC who worked for eight years as a community organizer on the streets of Brooklyn, thinks that attitude is important. "The Mid-Bronx Desperadoes don't tolerate graffiti in their buildings. They clean it off immediately. That sends a message that somebody cares about this building. That's a message that was missing in the South Bronx for years."

It's a message the Mid-Bronx Desperadoes and Banana Kelly send every day. The housing may have been rebuilt, but the neighborhoods still need tending. Getting crucial services like health care, for example, is still a challenge. Last year Banana Kelly helped establish a children's health clinic, and just a few months ago the Mid-Bronx Desperadoes helped open a modern doctors' office: before, the only choice most residents had was an emergency room at a city hospital, where they could wait an entire day for care.

Both groups emphasize the training and hiring of local people. Many Banana Kelly staff members live in the buildings they manage. "Most social service agencies draw lines between staff and clients," the director of one Banana Kelly program told me. "We don't look to hire professionals. We invest in training local people because it builds the capacity of the neighborhood. If our funding were cut tomorrow, the professionals would be gone, but these people would still be here."

One key neighborhood job is the building "super," or superintendent—the person who is responsible for keeping each apartment building clean and running. Late last fall, in a classroom on the third floor of a former public school building, I watched teacher Charan Mangru, a native of Guyana, work with seven young men, all high school dropouts. His students were learning how to compose a job-application letter. It was part of the "life skills" section of a five-month course designed to prepare them and 16 other students for careers in building maintenance and construction. Twenty-three students started the course, one of several that a Banana Kelly program called Family and Community Enrichment offers residents. In other life skills classes those seven students were learning the basic reading, writing and math they had not learned in school.

Mangru had outlined the job letter on the blackboard, and now he handed out sample paragraphs. "I don't want to copy off the paper," one student objected. "I want to write my own letter." Prominently posted on the wall was an article about Gen. Colin Powell, who as a boy lived just a few blocks from this classroom.

Several blocks away I found Augie Demera teaching the "vocational skills" segment of the same course in the gutted-out basement of a Banana Kelly building. Demera was one of a number of young South Bronx natives working for Banana Kelly and the Mid-Bronx Desperadoes who told me they were "giving back something to the neighborhood." In his workshop I saw drywall partitions with enough practice electrical wiring to power a rock concert, and a locker room full of sinks installed along one wall. Demera teaches electricity, plumbing, carpentry and boiler maintenance, all necessary skills for building superintendents. "When they finish this course," he said, watching a trio of young women wiring an electrical connection on a piece of plywood, "they'll have the basic skills they need to run this building."

Who knows—maybe someday they'll be able to help run the community. Banana Kelly recently trained homeless students at the Bronx Regional High School to help build their own dormitory. The Mid-Bronx Desperadoes are involved in everything from administering civilian street patrols and putting on youth talent shows to operating small-loan programs and fixing up public parks. I sat in on staff meetings that covered such topics as a book drive for one apartment building's library, a condolence note for a tenant whose mother had died recently, and a program to test children for lead poison-

Martha Coop

ing. Several times a week there are community or block association meetings where residents take up such problems as lack of security, supers who are unavailable for nighttime emergencies, broken washing machines, late parties and loud music.

A young man at one Mid-Bronx Desperadoes tenants meeting put his finger on what may be the organization's biggest remaining challenge. "We've accomplished a lot of our dreams," he said. "We've got the services a family needs. But people want to go to work."

Perhaps more than any other factor, it was the loss of jobs that destroyed the old Bronx. Now, after helping rebuild their neighborhoods and restore services, community groups are going after economic growth. The Mid-Bronx Desperadoes have helped revitalize several rundown commercial areas and are moving ahead on their most ambitious economic project to date, a supermarket and shopping center that Ralph Porter, who succeeded Genevieve Brooks as director, hopes will create more than 500 jobs. Meanwhile, Banana Kelly has formed a joint venture with Swedish and American companies to build a modern paper-recycling plant along the Harlem River railyard that would add another 300 jobs to the local economy.

Neither of these ambitious schemes is by any means a sure thing, nor is it clear that enough jobs can ever be created to lift the South Bronx out of poverty. On the other hand, a look at what's already happened there suggests that the future could be full of surprises. The Mid-Bronx Desperadoes and Banana Kelly were born in desperation. Now they negotiate investment plans with international corporations. Genevieve Brooks only wanted to get the trim in her apartment house cleaned. Now she helps oversee the entire borough.

On Simpson Street, just across from the building where I grew up, I saw a bilingual mural that captures the spirit of the South Bronx today. "*Dios bendiga nuestra comunidad,*" it says, over a field of bright flowers. "God bless our community." And down in the corner, in English: "There is hope."

Residents playing dominoes outside their "casita," or clubhouse, are surrounded by colorful plantings that create a near-tropical atmosphere. The lot was leased to the community for beautification and relaxation.

Finally the phrase "a lot of" means something.

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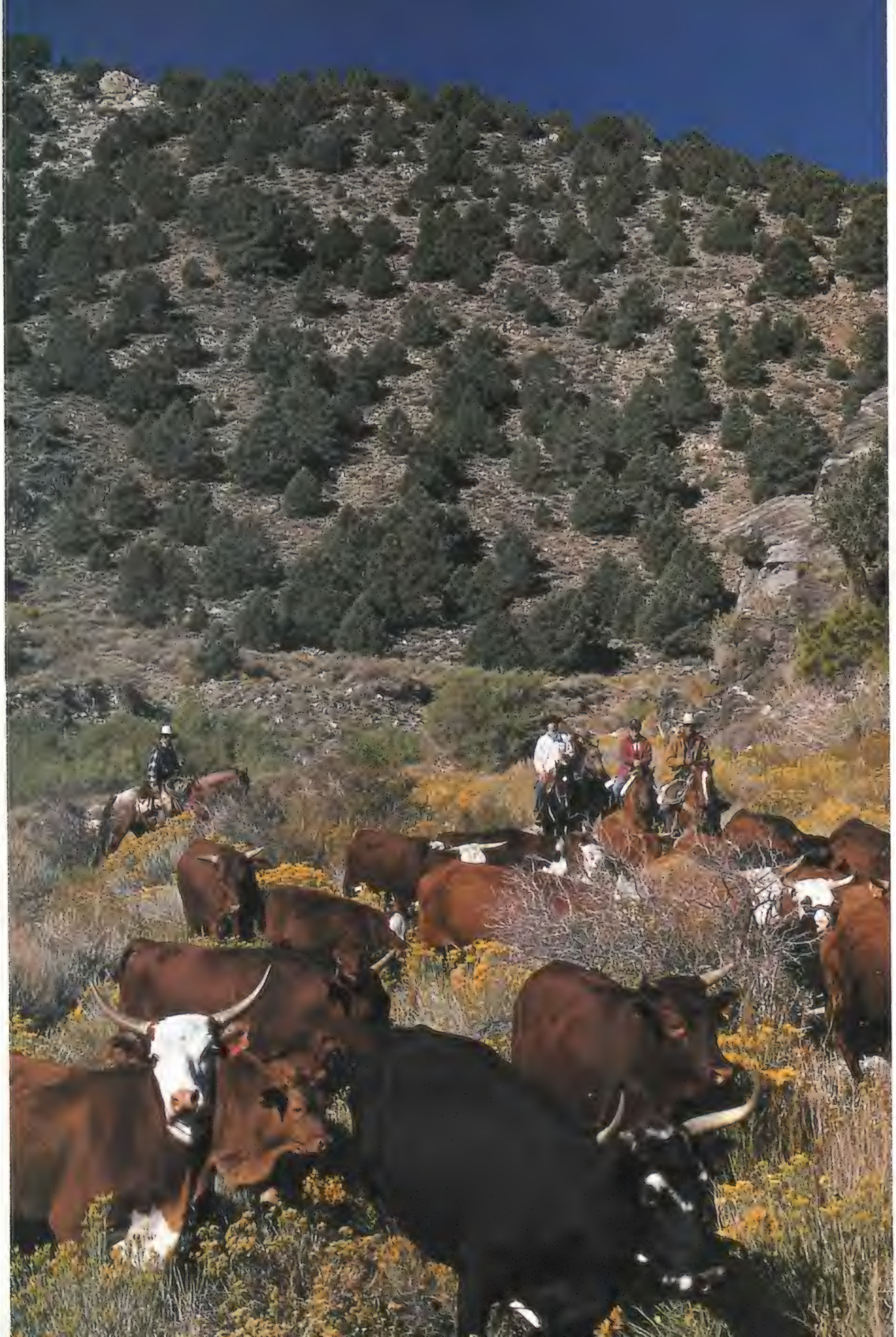


By Jim Doherty

The cattle ranch that doubles as a school for doers

Punching cows and hitting the books go together at Deep Springs, a feisty college that acts like it's run by the students—and it is

In ethics class Jarrod Millman argues a point with Josh Maldin (right), while John Dewis (rear) listens.

It's branding time again at the Deep Springs ranch. The April sunshine is glinting off the snowy peaks of the Sierras some 40 miles to the west, the alfalfa fields are greening up, bluebirds and robins are bopping around the irrigation ditches, and down at the corrals near the barn all hell is busting loose. The cattle are mooing, the propane-gas torch is roaring, the dust is flying. Ranch manager Geoff Pope and two of his cowboys, Jason and Grégory, are driving a small herd through a series of gates and cutting out the calves. Meanwhile Geoff's resourceful wife, Iris, a onetime intensive-care nurse, has been shouting instructions for giving shots at helpers Noah and Margaret as she fills a pair of enormous syringes.

Let's see, who else showed up to help out today? Mark, Robb and Dan, the guy with the blue bandanna on his head—they'll assist with the "wrassling" and branding. Josh, the sleepy-looking kid leaning against the fence—he'll be earmarking and castrating. "Remember, Josh, you got to *rip* 'em off," says Dan. He's an old hand at this. Josh is not. "That causes trauma, and the swelling shuts off the blood. If you cut 'em off, you could get some serious bleeding." Josh nods.

The calves are bunched up at the far end; the crew is ready. "OK, Grégory, go get 'em!" Geoff barks. Grégory, slouched in the saddle with a cigarette dangling from his lips and his lariat coiled at the ready, looks for all the world like the Marlboro man. He shakes out a loop, snaps it at a calf's hind leg and misses. He throws again and misses. A third try, another miss. Mortification, relieved somewhat by salty cussing.

Eventually Grégory snags one. Robb and Dan run down the rope, flip the terrified creature on its side, tie its back legs and pin it to the ground, while Noah and Margaret administer the shots. Using Geoff's pocketknife, Josh cuts a notch out of an ear. The calf bawls. "You need a bigger angle!" Geoff hollers. "Square it off!" Josh carves a bigger piece out of the other ear. The calf bawls. "That's better," Geoff says. He then shows Josh how to castrate. The calf bawls. Jason, down off his horse now, applies the red-hot brand, an upside-down T. The calf bellows. They untie him, and he scrambles up and runs away.

Josh returns to the fence. He is pale; his hands are trembling. "I'm not looking forward to the next one," he says. Upon further reflection, he has a few words with Geoff. "Sure," Geoff says. "You can help out with the wrassling instead."

Grégory trips up another victim—on the first try, this time. Geoff takes over the knife work. In due course the crew establishes a rough rhythm—lasso, drag, flip, give shots, cut ears, and so on—until finally all two dozen or so of the calves have been done. If these were ordinary cowpokes, they would dust themselves off now and head into town for some liquid refreshment. As it happens, the nearest town of any size is more than an hour away,

Ranch manager Geoff Pope (left) watches as a trio of Deep Springers herd cattle during late-summer roundup.

Photographs by Kay Chernush

and in any case, these are not ordinary cowpokes. They are students and teachers at Deep Springs College, the campus of which is that unobtrusive collection of low-slung buildings a couple of hundred yards up the road.

Deep Springs is situated in the middle of a high-desert valley in eastern California, an environment as gripping as the physical surroundings of any school in the country. Insofar as it relates to the kind of frivolity most college students consider their due, however, it might as well be located on Mars. There is no student union at Deep Springs, no football team, no basketball team. There are no fraternities or sororities, no beer parties or weekends on the town. There are no dances or rock concerts, no theaters, no trysts high above Cayuga's waters. The biggest social event of the year for first-year men is sliding bare-bottomed down a sandy hillside in the moonlight.

No place for the faint of heart

What people do here, basically, is work. The members of the branding crew had been in school all morning. Students who did not put in an appearance at the corrals this afternoon were otherwise engaged in similarly useful activities—planting vegetable gardens, digging trenches, repairing machinery, shoveling manure, washing dishes, and the like. After supper everyone will attend the weekly "SB" (student body) meeting to debate and decide certain matters pertaining to the governance of the place. When that breaks up, the bleary-eyed scholars will hit the books into the wee hours of the morning.

Deep Springs has been called one of the best-kept secrets in American education. It's a liberal arts institution unlike any other—unabashedly elitist, relentlessly old-fashioned, outrageously innovative. At a time when traditional colleges and universities are under fire for deplorable standards and wishy-washy curriculums, Deep Springs prides itself on being an academic boot camp dedicated to turning out future leaders. But Deep Springs' concept of a leader is, like the school itself, a bundle of paradoxes: a rugged individualist committed to community service, an intellectual overachiever who enjoys hard physical labor, an iconoclastic idealist who believes conflict can be constructive. The aim here is not merely to educate minds but to build character.

"How quaint," you say. Well, not exactly. Deep Springs is changing. It used to be the kind of place where John Wayne, George S. Patton and perhaps Genghis Khan would have felt right at home. Today it's becoming a place equally well suited to a type of individual Iris Pope calls "the SNAG," the Sensitive New Age Guy. It would be a bit of an oversimplification to say that the transition under way at the college is from rough-and-tumble to touchy-feely, but clearly the trend is in that direction. "This is not about political correctness," says Susan Szewczak, a former dean of students who now teaches science at Deep Springs, as does her husband, Joe. "It's about balance."

Cluster of trees and buildings that constitutes the Deep Springs "campus" stands out in arid valley setting.

Balance? L. L. Nunn, the self-made millionaire who founded Deep Springs in 1917, must be churning in his grave. Nunn was no middle-of-the-roader when it came to education (or anything else, for that matter). He established the school as a radical alternative to conventional centers of higher learning, which, he believed, had failed to produce the kinds of thinkers and doers he needed to run his Western mining and hydropower enterprises. It's a tribute to Nunn's audacity (or an indictment of higher education's lack of it) that Deep Springs remains as singular in 1995 as it was the day it started.

The student body numbers slightly in excess of two dozen individuals. It is all male and exceptionally bright. (The combined SAT scores of Deep Springs' applicants average above 1,400. They are among the few

Jim Doherty, a member of the Board of Editors, wrote last September about Adolph (Bud) Herseth, the Chicago Symphony's extraordinary trumpet player.

Water is supplied to a green alfalfa field next to the school by irrigation system the students built and run.

high school seniors in the country whose "safety schools" consist of places like Harvard, Yale, Princeton and MIT.) Students stay at Deep Springs, which is fully accredited, for two years, occasionally three, and then usually transfer to Cornell, Berkeley, Harvard, the University of Chicago or some other prestigious four-year institution to obtain their degrees.

Deep Springs is free; the students do not pay tuition or any other fees. Instead, they are required to work at least 20 hours a week at jobs deemed essential to the school's operation and economic survival. They are also largely responsible for hiring and firing the staff, selecting the following year's incoming students, administering the work program, setting policy and enforcing it. The ground rules established by Nunn and his original board of trustees are few in number, simple and immutable. No female students, no booze or drugs, no absences from campus except for official breaks or medical leave.

The Deep Springs community is tightly knit. In addition to the Popes and the students, it consists of four full-time teachers and two or three guest teachers, a cook, a president, a mechanic, a farm manager, assorted spouses and children, and three dogs—Bert, Ruby and George. (The dogs, having been at the college longer than anyone or anything else, enjoy free run of the place and sleep wherever and with whomever they please.) All community members live either in the horseshoe-shaped arrangement of stone buildings that constitutes the campus or nearby. Everyone eats at the so-called boardinghouse and works at the dairy barn, the ranch or elsewhere on the 3,500-acre premises. There are two classrooms—one in the main hall and one in the "museum" next door, which houses a small collection of skulls and bones. There is one science laboratory and an art studio.

"A lot of humbling goes on"

"Deep Springers," as the inmates here refer to themselves, are a prickly bunch. Everyone criticizes everyone else. "This is an intense community," one faculty member says. "If you aren't interested in confronting issues, you don't want to be here. A lot of humbling goes on."

A lot of learning goes on too. The academic year consists of six seven-week terms. The only required courses are composition and public speaking—the college has always emphasized clarity of expression. During one recent term, the nine elective offerings included physics, animal physiology, German, legal and political philosophy, and a literature course called "The Modernist Moment." Class size ranges from two students to a dozen.

Individual responsibility is very big here. One alumnus puts it this way: "At other colleges, you find ways to beat the system. At Deep Springs, you are the system." He is talking about interdependence. If the student who is responsible for maintaining the boiler in the main hall neglects to do so, for example, everyone suffers when it breaks down. "It's kind of like being part of a rifle company in the infantry," says Raymond Jeanloz, a prominent California geophysicist who attended Deep Springs in the early 1970s. "You know your actions have profound implications for those around you, and that carries over later in your commitment to public service."

Beneath its antiestablishment veneer, its blue-collar chic and an esprit that at times verges on smugness, Deep Springs is a deeply reflective place. Indeed, it often seems more like a cloister than a college. But put a half-dozen or so Deep Springers in a classroom with a supercharged instructor, and the results are anything but monastic.

When a couple of visitors drop in on Pat O'Connor's "Modernist Moment" class early one morning, for example, a lively discussion of Virginia Woolf's novel *Mrs. Dalloway* is already in full swing.

Pat: Septimus! Tell me about Septimus! Tell me about his madness!

First-year students Fritz Donnelly (left) and Chris Thomas burn the midnight oil in dorm room they share. Judging by the housekeeping standards that prevail at the college, this room is nothing short of immaculate.

Eric: If it *is* madness . . .

Shawn: . . . existential madness?

Pat: Yes! Is it madness—or a capacity to *feel*?

Josh stops the discussion in its tracks with a question about Woolf's confusing stream-of-consciousness technique: Is there an independent narrator separate and distinct from the characters?

Pat: Good question!

Actually, it's a detour, but they explore it anyway. That's Deep Springs for you. Why stay on the main road if you can take a detour? Deep Springs has a thing about detours. Deep Springs *is* a detour.

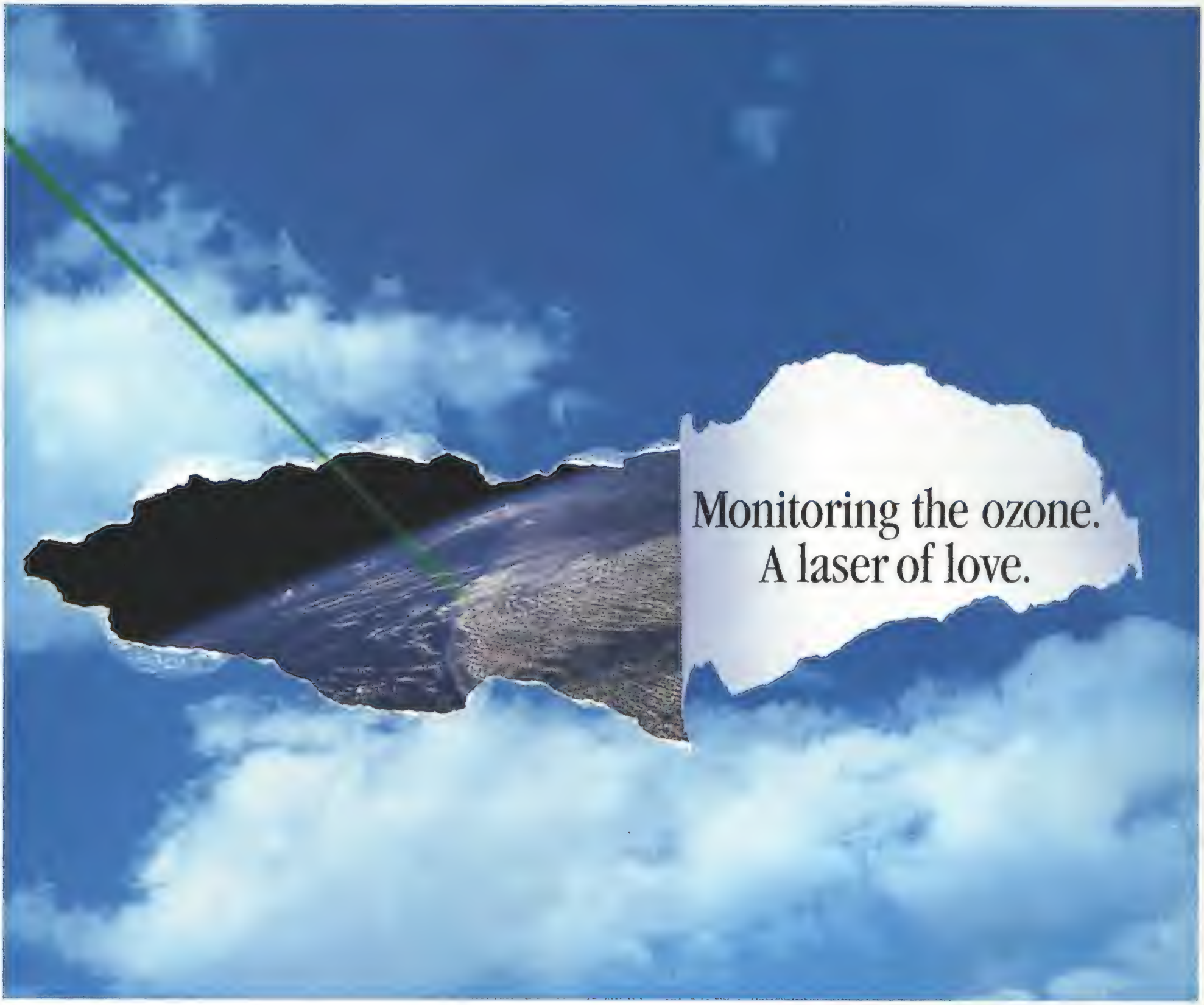
The classroom is filled mostly by the long table around which the students and Pat are seated. It has old-fashioned blackboards, chalk rails and felt erasers. It also has a computer; on the screen, a multihued pyramid is soaring over a purple mountain. Nearby, a bust of a frowning youth occupies a wooden pedestal. The bookcases are filled with embossed volumes.

Pat, who is pear-shaped and bespectacled, grew up in Brooklyn, got his doctorate at Yale and studied at Oxford. He is benign, engaging, funny. A mug of tea and a wristwatch are on the table in front of him next to two paperback books. Josh (this is not the same Josh who surrendered the knife at the corral) has a wild nimbus of dyed blond hair, a deep voice—and an orange, which he is absentmindedly peeling as he speaks. Shawn, wearing red socks and a green T-shirt, is slight, laconic and droll. He sips now and then from a plastic water bottle. Eric, tall, blond and husky, is wearing overalls and has a little pigtail. When Pat mentions a particular recurring image in *Mrs. Dalloway*, Eric bolts upright and exclaims: "Oh! That's *right*!"

Each of these characters is endowed with a strong personality, and each seems mature far beyond his years. Although Josh is spectacularly articulate, his classmates appear more amused than awed. They freely contradict him and one another and Pat, but without rancor or self-consciousness. Pat is not teaching a lesson; he is conducting a jam session at which each participant gets off his riffs while the others render an accompaniment full of dissonance and counterthemes. "I found a Deep Springs line," Eric announces at one point. He reads it aloud: "'After India, of course, one fell in love with every woman one met.'" Laughter all around. "That's a game we play here," Pat explains to the visitors, "looking for Deep Springs lines."

The college is blessedly free of red tape. There are three elected student officers. Another student serves as a voting member of the board of trustees. The labor commissioner oversees the work program. There are also four student committees. These are responsible for communications, curriculum (which includes recommendations on the hiring and firing of teachers), the se-

C&C for Human Potential



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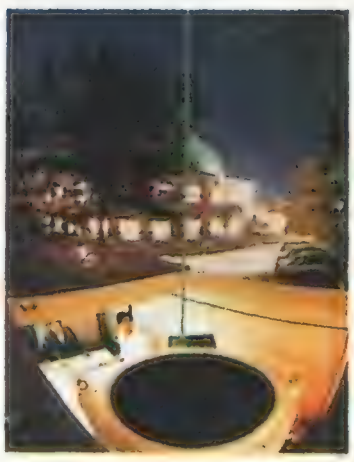

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lection of new students and evaluation of the performance of current students. Every Deep Springer serves on at least one committee. The SB meeting, chaired by the SB president, is the central mechanism through which the students run the show.

Before the meeting tonight, rock music is blaring out of the museum windows as the students wander in and take their places. Bert the dog makes himself comfortable on the floor next to Grégory's chair. Promptly at 8 P.M. the music is turned off, the front door is closed and the minutes are read. Then Shawn, the labor commissioner, gives a brief report, after which the discussion moves on to a student named Roger.

Roger is not here. Allegedly he has gone AWOL to visit a girl in town, which, if true, would not be the first time. Faculty members have been complaining lately that he is unresponsive in class. Just before the meeting began, Grégory reports, a teacher warned him that the SB is letting Roger "get away with murder."

One by one the students explain how they feel. Their comments are grave, thoughtful and, in most cases, extended. It is unclear to the visitors, however, whether everyone understands that what's at stake is not just how to deal with Roger but the integrity of the ground rule against "going out of the valley," as the students put it. In years past, Roger probably would have been given the boot.

Jarrod: I don't want to be vindictive. Let's be compassionate.

Grégory: But if he's AWOL, it shows a lack of respect to the student body, especially if all the excuses he has been giving are lies.

Jason: Maybe, short of suspension, we should ask him to consider taking a leave of absence.

Eventually the SB votes to put off a decision until Roger has had a chance to defend himself. Just before the vote is taken, the assemblage is startled by a shrill *Yip!* It's Bert. Grégory inadvertently had brought his chair leg down on the poor dog's foot.

The next order of business is a motion to permit a Deep Springs vehicle and driver to be used to pick up students who go to town during term breaks and get drunk. At present the students must drive themselves back, a situation freighted with the possibility of an accident on the narrow mountain road. The motion passes after lengthy discussion.

Now it's Doug's turn. A couple of weeks ago he was suspended from the work program for repeated failure to report at 5 A.M. for kitchen duty. He claimed his oversleeping was a medical problem, but he did not seek help after he was suspended. Worse, he has been sulking ever since. Travis wants the SB to restore Doug to kitchen duty and forget the whole thing.

Dan asks Doug to explain why he thinks his suspension should be rescinded. Because, Doug says, it was "negative," and the SB was antagonistic. Grégory says he is disturbed that the SB would even consider changing its mind. The fact that Doug has not responded well to the suspension, he argues, is no reason to reverse it. While Grégory is speaking, he leans back in his chair again; Abe, who is sitting next to him, reaches down and pulls Bert's foot out of harm's way.

Dan: Doug hasn't been happy. If this suspension is making him unhappy, to hell with it.

Abe: It seems to me we're allowing the individual who caused the problem to approve or disapprove of the SB's response.

After further discussion, Travis' motion to restore Doug to the program passes with two dissenting votes.

Next up: Abe's request for permission to keep a revolver in his room. His two previous petitions were denied, and there is some resentment among his fellow students that he is forcing the issue again. Nevertheless, the SB treats the matter with high seriousness.

Bert, one of three longtime canine residents at Deep Springs, chills out with two friends in a grape arbor.

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Margaret Hayden, a ceramics artist from Colorado, shows students in her class how to finish off a clay vase. The college usually hires two or three guest teachers like Hayden to augment its full-time faculty of four.

"Hefty," a big, friendly kid from rural Kansas who passed up a four-year scholarship at Harvard to come here, argues that the increased danger to the community far outweighs the pleasure Abe would derive from having the weapon handy for target shooting. Another student says he is opposed to handguns as a matter of principle. "You shouldn't vote against something like this on principle!" Grégory objects. "You have to have good *reasons*."

On and on they go for the better part of an hour, leaving no hair unsplit, no stone unturned. Abe is allowed a final say before the vote. He is a lanky, handsome dude, laid-back yet somehow immensely charismatic, a loner who projects terrific self-confidence. Throughout the debate he has remained unruffled. Now he takes several moments to explain why firearms handled safely are safe. This time, perhaps out of sheer exasperation, the SB votes overwhelmingly in favor of his request.

But that's not the end of it. The last part of every SB meeting is an "evaluation," during which anyone can criticize anyone else or address any issue. Though the votes have been taken, the arguments continue. The meeting does not break up until 11:30, at which time the bemused visitors are left to contemplate an evening in which ground rules have been bent, precedents have been set, sensitivity, compassion and feeling good have prevailed over discipline, duty and accountability. Roger gets a reprieve, Doug gets off suspension, Abe gets his gun, inebriated students get a chauffeur.

At breakfast the next morning a half-dozen students agree that the SB meeting reflected the deepening concern at Deep Springs for the welfare of the individual, as opposed to blind obedience to some arbitrary code of behavior. Jarrod puts it this way: "Doug was unhappy, so we were unhappy. Preserving the community is more important than punishing someone."

Not all that long ago, punishing someone was viewed as a perfectly legitimate way to uphold the community's values. But back then the weekly student speeches were considered strictly part of the academic program; today they're apt to be regarded as an outlet for confession and revelation as well. Recently, for instance, a gay student used his first speech as the occasion for his official coming out, and a student who stuttered talked about

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his stutter. Another speaker dwelt on his passivity (his speech was titled "Weak Soup"), a devout Catholic described the pain of missing mass, and Roger expatiated on the difficulties of true love. All this might shock alumni who were encouraged by their own teachers and classmates to equate personal reticence with strength and dignity. But the new, more open approach to differences and problems is the way the current generation of Deep Springers tries to avoid the divisiveness that sometimes threatened to tear the school apart in years gone by.

"During the early '80s, this was a hellish place," recalls Iris Pope, who works part-time as the school's accountant. "Fights, factionalism—it was rough." It was even rougher a couple of decades earlier, when the college's conservative trustees appointed a fractious right-wing president. It took a concerted effort by students and a teacher (later president) named Robert Aird to hold the faculty together and restore intellectual freedom.

Sherwin Howard, the chief executive since 1992, is the fourth president in the past six years. Unlike a number of his predecessors, he is low-key, philosophical and a certified academic. On leave from Weber State University in Utah, where he was a dean, he has been content to let students and teachers do their thing while he concentrates on raising money. He's pretty good at it. Last year, with a budget of $1 million and an endowment of $4.5 million, the college got its deficit down to $174,000—the smallest in years.

Part of the fascination of Deep Springs is that it never stays the same for very long. Every year, half the student body departs—and arrives. Faculty turnover has been high, too. Add the revolving door on the president's office and you have a formula for constant renewal.

In the 1920s the atmosphere was relatively refined. One young gentleman of the period was photographed as he sat reading a book in a gleaming leather armchair. He wore a white dress shirt, a sweater and pressed slacks. In the '60s and '70s hippie styles were in, and proposals to admit women, double the enrollment and rescind the rule against drugs were considered and rejected. There was at least one experiment with consensus government, which failed. The most consistent issue over the years, not surprisingly, has been coeducation. The students generally have been in favor of it, but not the trustees. Admitting women came up for a vote last October, and once again the trustees said no.

"Deep Springs has been most brutal when it has been under the sway of the old leadership mold—pushy, aggressive, macho," says Susan Szewczak. "The debate we've been going through over coeducation has enabled the students to see that it is possible to model leadership on other kinds of behavior."

The college has turned out leaders aplenty over the years, some famous, some not. Among the former have been William vanden Heuvel, onetime deputy ambassador to the United Nations, Charles Collingwood, the CBS News correspondent, and former U.S. Representative Robert Olin of Virginia. The older alumni were primarily doctors, lawyers, engineers and businessmen. Recent alums have been more inclined to take up less-remunerative careers in public service.

Waist-deep snow and responsibility

Most Deep Springers would succeed no matter where they went to school, but there's a widespread feeling among alumni that perhaps the place does have some influence on character, after all. They like to say that if a Deep Springs guy says he is going to do something, he does it. Michael Stryker, a neurobiologist and professor at the University of California in San Francisco, attended the school in the early '60s. One winter it was his job to ride periodically through waist-deep snow on horseback up Wyman Canyon to break the ice in the tank that supplied the college's water. "It was up to *me*," he says. "It was my responsibility to the community." Later he went to Africa with the Peace Corps and built water systems there using some of the practical know-how he had acquired at Deep Springs.

When you arrive at the school after dark, you have been driving for many miles over a formidable mountain pass and across a wide valley. It first appears as a cluster of tiny lights twinkling brightly in the middle of a vast and forbidding blackness. For the majority of those who matriculate there, it remains an incandescent presence long after they leave. Stryker, who went on to study at MIT and Harvard, says it was one of the most vivid experiences of his life. He goes back often, gives money and tries to keep in touch with other Deep Springers. Now his daughter wants to go there. "I hope someday she can," he says.

Matt Kwatinetz puts up with a cat while milking cow in barn. Working as "dairy boy," milking twice each day, is Kwatinetz's labor assignment.

Joe Gardner Wesseley, who's the designated "head irrigator," guides a water line across land that has recently been planted with alfalfa.

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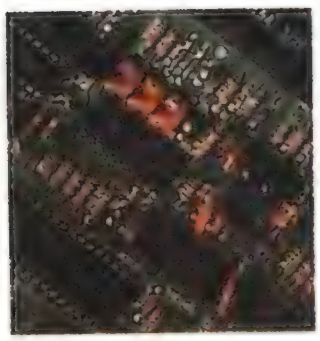

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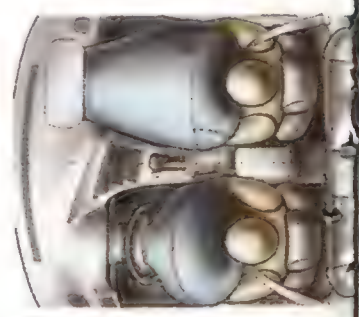

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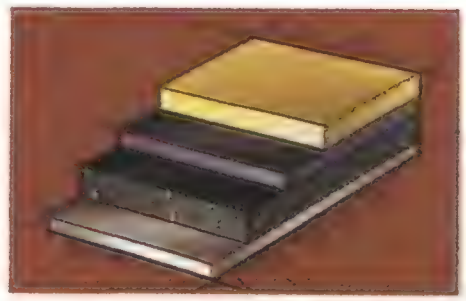

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By Bruce Watson

It's not what you do that counts, it's what you *belong* to

Got that left-out feeling? Don't despair. Even if you're a bit odd or downright frumpy, there's probably a society of kindred souls

Jim Smith steps to the podium and calls the meeting to order. He welcomes Jim Smith, and Jim Smith, and Jim Smith. Off in one corner, Jim Smith signs a guest register and passes it to Jim Smith. Arriving late, Jim Smith takes a seat beside Jim Smith and Jim Smith jr., while all around the room Jim Smiths wonder about other Jim Smiths who haven't showed up yet.

Most of the time Jim Smiths blend in with the rest of society, but for the past 25 years dozens of "Jims" have been gathering annually to seek notoriety by the numbers. Foursomes of Jim Smiths play golf. Whole teams of Jim Smiths compete in softball. During "Meet Jim Smith" night ordinary Jims speak about their families and careers, then play "Jimgo," their own version of Bingo. After three days of hobnobbing with other Jims and their wives (who automatically belong to the Jim Smith Auxiliary), they head home, safe in the knowledge that they belong. They are among the 1,700 members of the Jim Smith Society.

"It's unique," says Jim Smith of Methuen, Massachusetts, known at the meeting as "Methuen Jim." "We bring together Jim Smiths from all over the country. We have college professors, corporate executives and truck drivers. Being a Jim Smith is such a special tie that no one cares what you do. There's a feeling here."

"Big associations make headlines, but thousands of small groups make common cause for uncommon people."

When Americans think of associations, they think big: the American Medical Association, the National Rifle Association, the American Association of Retired Persons. These are the organizations that make headlines, but hidden in the nation's niches are thousands of smaller groups making common cause for uncommon people. Though it is often referred to as a bastion of individualism, America is, in fact, a society of societies. Notwithstanding current speculation in certain academic circles about an alleged falloff in "civic engagement" and volunteerism, there are in fact more than 23,000 national and 100,000 local and state organizations. Every last business, trade, religion, hobby, car, boat and pet has banded together into clubs, lodges, fraternities, leagues, PACs or circles. Whether it's the Cookie Cutter Collectors Club, the Esperanto League for North America or the National Association for the Advancement of Perry Mason, each interest has its interest group. Some are serious, others little more than a gag. A few grow as large as cities, but most remain like small towns—quiet, cohesive, even FRUMPy.

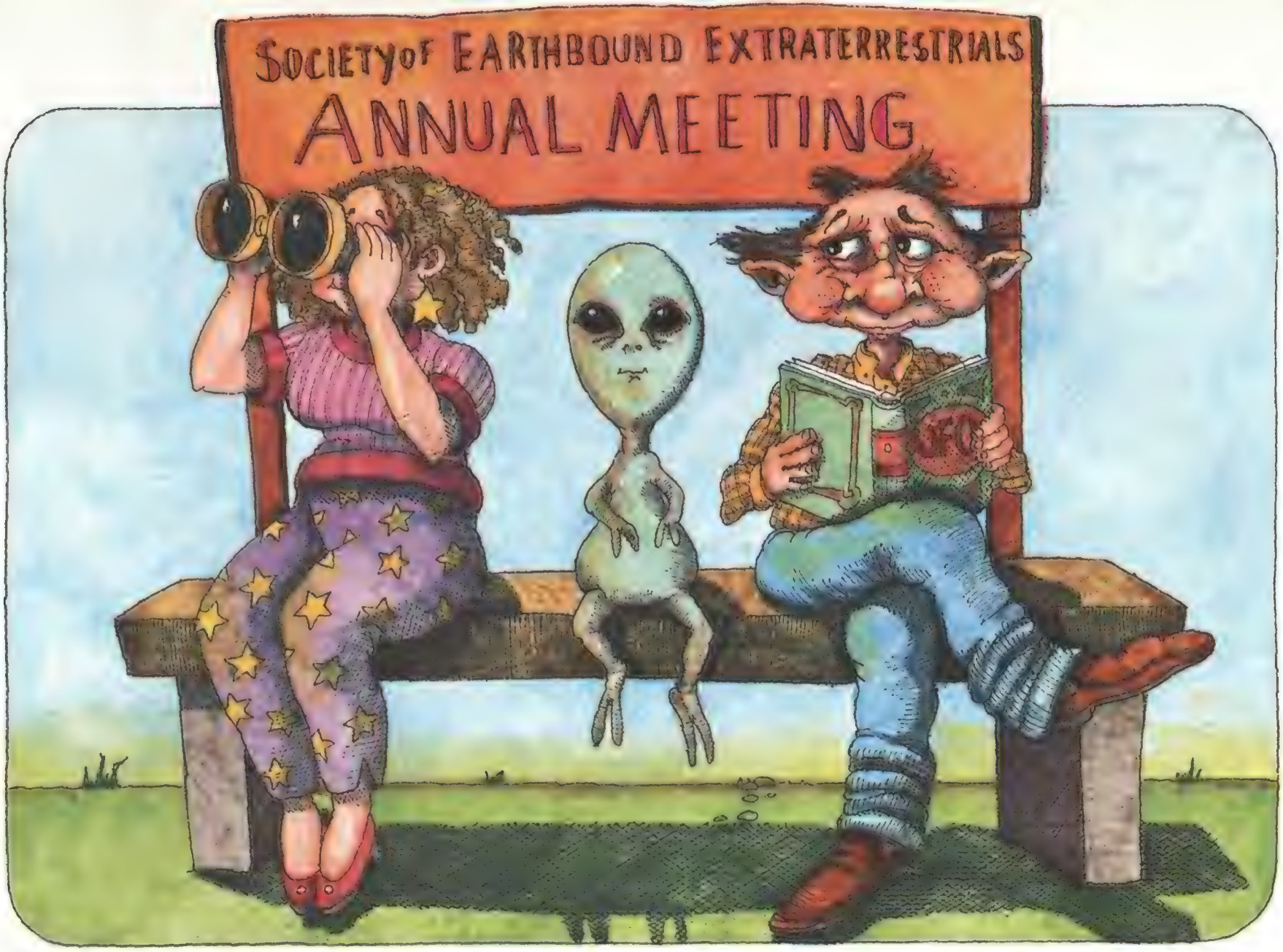
During the 1960s, Barbara Hovanetz felt alone. "I was not a protester, a beat, a hippie or a sorority member," she recalls of her days at the University of Iowa. "There were about a dozen of us on our own, not belonging to any movement, so we decided to start our own group." And today they call that the birth of the FRUMPs—Frugal, Responsible, Unpretentious, Mature Persons. For 20 years, the only official FRUMPs were Hovanetz and friends who kept in touch, exchanging salad recipes, cleaning hints and tips on how to be a FRUMP in a changing world. Then in 1985, because "everyone who was fashionable in the '60s had become FRUMPy just like us," Hovanetz branched out.

"Good-looking, wealthy, respectable, highly visible people need not apply," Hovanetz advertised in a penpal magazine. "All others contact the National FRUMPs of America for a free newsletter." A newspaper columnist spotted the ad, interviewed Hovanetz and sent word around the country. Seems there were a lot of loose FRUMPs out there. Soon 25,000 of them, including bowling leagues, doily-design clubs and an elementary school faculty, joined up. Hovanetz, who lives in Winter Park, Florida, began writing a newsletter featuring holidays like "God-awful Tie Day" and announcements for Accordion Awareness Month. The newsletter got to be too much work, but Hovanetz still accepts new FRUMPs. To qualify, just answer questions like "Do you enjoy reading garden catalogs?" and "Do you have a nondescript appearance and a generic personality?"

The FRUMPs struck a chord in a dissonant world, Hovanetz explains. "We celebrate the imperfection of being FRUMPy. People often write me saying, 'I'm so glad there are other people like me out there.'"

Rest easy, FRUMPs and friends. There must be some-

Illustrations by Lane Yerkes



"Even aliens can be joiners, thanks to the Society of Earthbound Extraterrestrials (SEE). Among its more than 500 members are the 'Star People,' those with an accelerated body temperature and extra vertebrae."

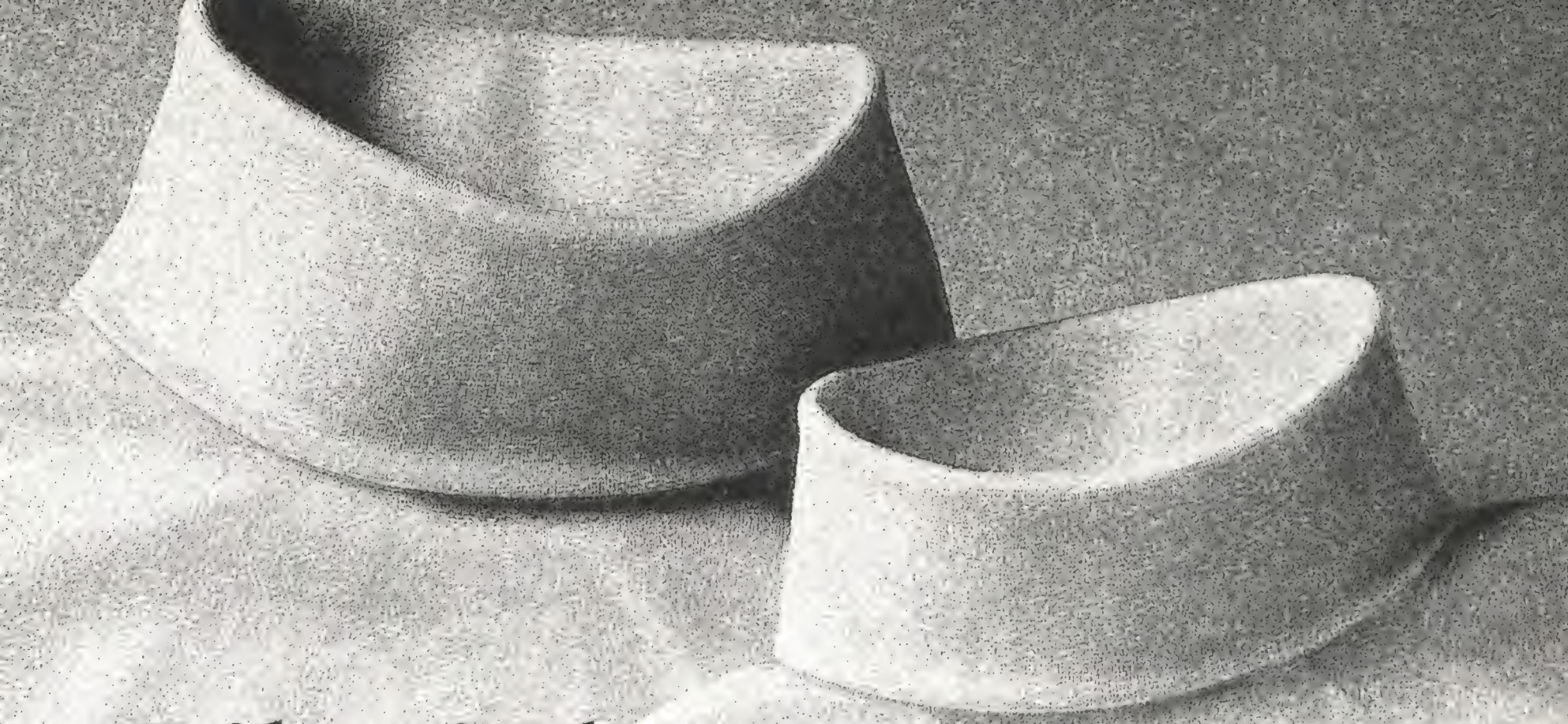
one like you out there. From the Aaron Burr Association to the ZZ Top International Fan Club, no topic is too eccentric to have its own organization. Unlike Groucho Marx, who would never "belong to any club that would accept me as a member," seven out of ten Americans belong to at least one club or society. Eager to share interests, we join any club that promises a kinship of concerns. And if there are no such clubs, we start them. Time was when we defined ourselves by where we lived—a Texan, a New Englander, a Hoosier—but now we are what we join. We are idealists, 1,200-some members of Idealist International Inc. We are Frankenstein buffs, 250 in the International Frankenstein Society. We are Sherlock Holmes fans, members of nearly 200 separate societies honoring the fictional detective (SMITHSONIAN, December 1986). We are Edsel owners, more than 900 in one club. Above all, we are people who yearn to belong to something larger than one.

Jim Smiths understand this need. Last July, 38 Jims gathered in York, Pennsylvania, for their 25th annual Fun Festival. Meeting in the same motel as the Association of Left-handed Golfers, Jims explained why they had come from around the country. The society's motto, "We Don't Shun Fun," explained only half of it, according to Jim Smith of Conway, Missouri. "The human race is both individualistic and gregarious," says the retired history professor. "Since individualism is a principle of our psyche, we need societies to give us a sense of who we are. Europeans, with centuries of history and tradition, know who they are. But here, with our philosophy of progress and change, no two days in a row are ever the same. Belonging gives you an anchor."

Nearly 40 years ago the best-selling book *The Organization Man* lamented the loss of rugged individualists. Author William H. Whyte jr. (SMITHSONIAN, February 1989) worried that we had become a nation of corporate middlemen who don't just work for an organization but "belong to it." Whyte did not foresee how individual eccentrics could add personality to organizations—even bland organizations.

On a sunny June day in 1991, Jim Boren gave a canvas bag full of letters to friends in a canoe on the Arkansas

Mr. Watson, who wrote last year on the Peace Corps, fallout shelters and hats, wasn't a "joiner" until the Jim Smith Society made him an honorary member.



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River near Muskogee, Oklahoma. The letters were addressed to several business people, university professors and a couple of ordinary citizens—all in Tahlequah, Oklahoma, 32 miles away. Boren's friends set out paddling. Earlier, at a Muskogee post office, an associate had mailed another batch of letters addressed to the same people. The race between the U.S. Postal Service and the International Association of Professional Bureaucrats (INATAPROBU) was on. Boren, a veteran Foreign Service bureaucrat, formed INATAPROBU with a simple motto: "When in charge, ponder. When in trouble, delegate. When in doubt, mumble." Now celebrating its silver anniversary, the association gives annual awards for bureaucratic jargon, conducts exams for Certified Professional Bureaucrats (CPBs) and occasionally races the bureaucrats who run the Postal Service.

While the Postal Service processed its mail, Boren's canoers finished their relay leg and handed the letters to a jogger who set off running backward. The jogger passed the letters to a walker who handed them to a mounted rider. Next the letters were driven for several miles in a vintage roadster, then picked up by dancers who waltzed them to the campus of Northeastern State University in Tahlequah, where Boren teaches political science. There several Native Americans used the letters in a war dance before strapping them to the backs of turtles for delivery. INATAPROBU's relay team won the race by about 30 hours.

Why has a nation that once championed Lindberghs and lone cowboys become a nation of joiners? It seems there's a flip side to the old pioneer spirit. No matter how rugged your individuality, pursuing a private passion on your own can make the world a lonely place. If you're just an average Joe or Jane with a fondness for, say, walking in malls, where will you find someone who shares your hobby? You can try your luck at the PTA or a local lodge, but join the National Organization of Mall Walkers (NOMW) and you'll never walk alone.

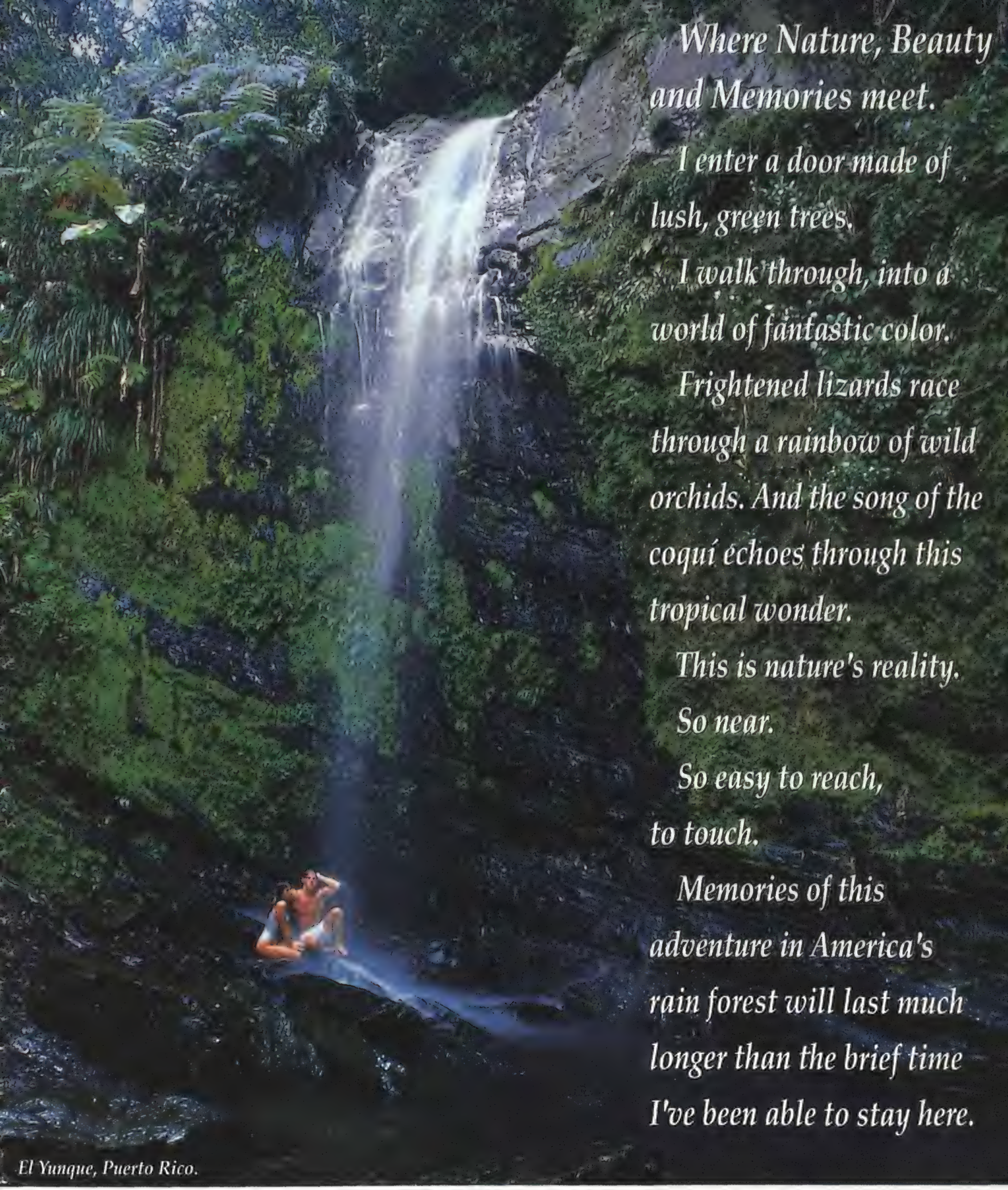
It's a mall world, after all

"People who walk in malls find it easier to walk with someone," says Tom Cabot, NOMW president. Since 1988 the organization has offered awards and certificates for mileage walked in more than 150 malls across the country. One member has logged some 10,500 miles in his local mall. Each year several hundred new members join, meet walking partners and head out.

Societies provide some good clues to our national character and concerns. Our faith and hope spring eternal in multitudes of religious societies. Our charity shines through thousands of volunteer groups. Devotion surfaces in more than 500 fan clubs, while hatred hovers in some 20 white-supremacy groups. And as new interests evolve, from computers to crystal healing, new associations form to gather the faithful. Today's Organization Man has shed his gray-flannel suit for a coat of many colors—sometimes even a spacesuit.

Otomar Tllak's society gets a lot of letters that begin "I work with a person who is not from here. . ." It might be an odd gesture, a frozen smile or a vacant stare, but Tllak knows the telltale signs of an alien. Even aliens can be joiners, thanks to his Society of Earthbound Extraterrestrials (SEE). Most of SEE's 500-plus members are merely UFO watchers, but some claim to be UFO pilots—"Star People," with an accelerated body temperature and extra vertebrae. "We believe them because, after all, we are a nondenominational extraterrestrial organization," Tllak says. Based in Berkeley, California, and Edmonton, Alberta, SEE provides UFO education, does UFO research and has its own 900 number honoring an "Alien of the Month." In pushing the envelope of

"In 1906 the Cat Fanciers' Association split from the American Cat Association, offering its own shows."



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credibility, sometimes with tongue in cheek, Tllak is not alone. Dowsers, "ancient astronauts," werewolf researchers, Bigfoot fans, dolphin communicators and others on (or beyond) the fringes of science all have their own societies, proving that in the 1990s everyone needs a newsletter.

Despite its space-age twist, this need for networking is not new. "Americans of all ages, all conditions and all dispositions constantly form associations," Alexis de Tocqueville observed in 1835. "Wherever at the head of some new undertaking you see the government in France, or a man of rank in England, in the United States you will be sure to find an association."

Tocqueville's observation has echoed throughout our past as societies have made history. The American Anti-Slavery Society led the abolitionist movement. The Woman's Christian Temperance Union rallied the fervor that led to Prohibition. The Southern Christian Leadership Conference, the Congress of Racial Equality, and the Student Non-Violent Coordinating Committee championed the civil rights movement. NOW (the National Organization for Women) led the 1960s feminist movement. In the past few decades the urge to merge has been stronger than ever. More than 60 percent of the nation's organizations have been founded since 1965, according to Tom Gorski, a vice president with the American Society of Association Executives. An association of associations, Gorski's group keeps careful tabs on joiners. If our associations and nonprofit organizations constituted a single country, Gorski notes, their expenditures would exceed the budgets of all but seven of the world's nations. The meetings of all these associations help fuel the $54 billion convention industry.

Because they lobby for freedoms or promote pet interests, some organizations take themselves very seriously. "The Flat Earth Research Society is not like those 20,000 other groups," society president Charles K. Johnson says. "We don't like to be categorized with them. We are different because we have the fundamental fact that the Earth is flat, and it is a fact. There's nothing odd about us." OK. But in an often somber world, it's refreshing to find groups formed just for fun.

Nothing bothers Russell Meyer more than hearing someone drone on and on at a podium. Meyer, an English professor in Emporia, Kansas, dreamed of preempting such pedantics. He and others formed the Porlock Society, which is dedicated to interrupting long-winded speeches. Soon members were coughing together, shuffling chairs and synchronizing their "ahems." Meyer's own favorite interruption came when a Porlock member stood up in the middle of a lecture and said, "I'm going. I've heard all this crap before." The Porlock Society draws its inspiration from Samuel Taylor Coleridge's "Kubla Khan." Coleridge was interrupted by a visitor from the town of Porlock, England, when he was writing the poem and never finished it. The group has 230 mem-

"The Errors, Freaks and Oddities Collector's Club in Norwood, Massachusetts, is not a circus-freak show. It's a stamp club devoted to one-of-a-kind blunders and misprints that occur in ordinary postage stamps."

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bers, a newsletter called *Cogito Interruptus* and bushels of irreverence. "We're determined to interrupt Norman Mailer some day," Meyer says. "We should have interrupted him just after he wrote *The Naked and The Dead.*"

The Porlocks are the nation's only society of interrupters. But if all goes according to pattern, someday there may be different societies to interrupt different kinds of speakers. Groups have a tendency to subdivide.

Consider a simple category: cats. In 1897 the American Cat Association was founded to promote the welfare of cats and their owners. Broad, worthy goals, these, yet not particular enough to please some. So in 1906 the Cat Fanciers' Association was formed, sponsoring shows and pedigrees of its own. A number of cat fanciers were still restless. In the early 1930s they split off, creating the Cat Fanciers' Federation. Next came the American Cat Fanciers Assocation, and the International Cat Association. "The dog people don't do this," explains Susie Page, president of the American Cat Association. "We're more catty, I guess."

Ailurophiles love to split hairs

Or maybe it's just that they're purrfectionists. Not content with all those associations, many ailurophiles insisted on lining up and forming ranks by breed, starting the Greater Siamese Cat Club, the National Birman Fanciers, the Persian Bicolor and Calico Society, the Sacred Cat of Burma Fanciers, the United Silver Fanciers.

When associations split into subgroups, none are too small to attract a following. The Encyclopedia of Associations lists 90 different motorcycle groups, 62 bird organizations, 279 societies relating to horses, 92 for cattle. That special breed of fan, the Trekkie, can join any of 19 different *Star Trek* fan clubs. Beam us up, Scotty. We've paid our dues.

Shopping in this supermarket of societies, even the common man specializes. In his 1941 movie *Meet John Doe*, Frank Capra imagined a nationwide movement of "John Doe Clubs"—that is, groups like the Jim Smith Society. But today, a common first name is all you need.

Late one night, Robert Idso lay awake pondering his name. "There are so many 'Bobs' and it's so easy to spell our name," Idso said. Tossing and turning, he could have joined the American Sleep Disorders Association. Instead he decided to start his own group—a club for Bobs. Idso advertised in a local paper, and word spread. "Before I knew it, I was getting 300 letters a week from Bobs all over the world. I had no club and had to make one quick." The Minnesota schoolteacher created Bobs International. Members, 650 Bobs and counting, receive lapel stickers proclaiming "Hello, My Name is Bob," pencils embossed with "Bob," the newsletter *Yessirree, Bob,* and a list of famous Bobs from Bob E. Lee to Bob-o-links. "Lots of Bobs out there felt as I did," Idso says. "It's time people named Bob got a little respect." Just as Bobs have their group, Richards, too, have gathered together, forming the Dicks of America to "make Dick the most beloved name in the country."

"The Society to Curtail Ridiculous, Outrageous and Ostentatious Gift Exchanges fights excess."

But with every Jim, Dick and Bob closing ranks, as many as a thousand new associations are formed each year. How can a single group stand out in this crowd? A catchy acronym helps. The Society to Curtail Ridiculous, Outrageous and Ostentatious Gift Exchanges fights excessive gift-giving at Christmas. Its initials: SCROOGE. The National Organization Taunting Safety and Fairness Everywhere, a group calling itself "the world's most sarcastic organization," is better known as NOT SAFE. And the Benevolent and Loyal Order of Pessimists is simply BLOOP. When there were fewer societies, their names were umbrellas so all-inclusive as to hide the society's purpose, as folksinger Woody Guthrie suggested in his song about the Ladies Auxiliary: "Oh, the Ladies Auxiliary, / It's a good Auxiliary, / 'Bout the

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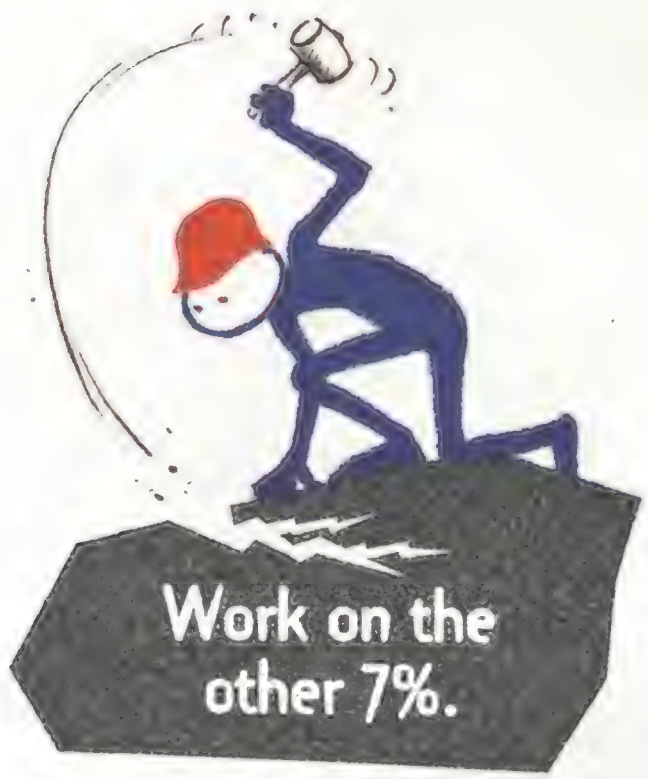

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best Auxiliary / that you ever did see. / If you need an Auxiliary / See the Ladies Auxiliary, / It's that Ladies / Auxiliary."* But now names are more specific. Who can doubt, for example, the aim of SPEBSQSA, the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America?

Nevertheless, joiners should beware: some groups are not what they seem! The John Denver Early Warning Network in Bothell, Washington, is not a civil defense club sounding an alarm when the singer is about to air another Christmas special. It's just a fancy name for a fan club. The Errors, Freaks and Oddities Collector's Club in Norwood, Massachusetts, is not a circus-freak show. It's a stamp club devoted to those one-of-a-kind blunders and misprints that occur in ordinary postage stamps. The Escapees Inc. in Livingston, Texas, is not a gang of prison fugitives. It's a recreational-vehicle club promoting full-time living in RVs.

This struggle for attention points up the risks of organizing. Sure, you want to share your fondness for philately (252 clubs now taking members). Of course you want to meet others with your taste for toothpick holders (contact the National Toothpick Holder Collector's Society in Eureka, Illinois). Yet for every success story, there's a club that held an annual meeting and almost no one came. True belongers don't let low membership get them down. In societies, especially fan clubs, small is often beautiful.

Darlene Harff had never been a fan of fan clubs. "People always seem to think there's something wrong with you if you're in a fan club," Harff says. "Someone can spend a lot of money to go to the Super Bowl or the World Series, but if you follow an actor, people think you're a groupie." Despite the risks, Harff decided to find out whether actor Alan Feinstein had other devotees out there. "He's the kind of person you see a lot in movies and on TV, but you don't know his name," Harff says of the actor who has been on 150 TV shows and won several stage awards. Now, thanks to her enthusiasm, Feinstein has his own international fan club. It boasts 42 members. "I don't think I'd want any more," Harff says. "Fifty would be too hard to keep up with."

Harff and a handful of loyal fans have traveled together to see Feinstein onstage in several cities. Seven of them had lunch with him in Los Angeles. Harff keeps Feinstein's fans abreast of his upcoming appearances and answers the actor's fan mail. "We're just a bunch of people who like theater and good actors," she says.

Long after the rest of the world has forgotten its stars, fan clubs remain faithful. Much of the nation has forgotten Martin Van Buren, but his fan club remembers the eighth U.S. President each year with a dinner and a seance in San Francisco. Western film star Tom Mix got a fan club in 1986, and 450 loyal members of Simply Divoon gather in Lehigh Valley, Pennsylvania, each Valentine's Day to honor Jayne Mansfield.

Just as associations are born and reproduce, they also die. Some pass away from neglect, but most are smothered by paperwork. Running one takes time—time spent publishing a newsletter, cashing dozens of $20 dues checks, planning an annual convention. Time explains why there is no longer an International Dull Men's Club in Sausalito, California. "It took a lot of energy to keep it going," former president Joe Troise explains. "It took on a life of its own. There was a huge amount of paperwork, talking, corresponding, and it got to be too much."

Some organizations that go belly-up just can't be replaced. If you joined the Institute of Totally Useless Skills, to learn advanced eye-crossing, spoon-playing

"There is no longer an International Dull Men's Club. 'It took on a life of its own,' sighs its ex-president."

*LADIES AUXILIARY Words and Music by Woody Guthrie TRO—© Copyright 1961 (Renewed) and 1963 (Renewed) Ludlow Music Inc. New York, NY. Used by permission.

and pen-bouncing, where do you turn if its founder decided it was useless? Among the many defunct organizations are the Gertrude Stein Philately Society, the Tara Collectors Club and the Buffoons of America.

The failure of these and many other organizations makes the American Association of Aardvark Aficionados (AAAA) an inspiration to joiners everywhere. In 1975 the AAAA began promoting National Aardvark Week in early March as an alternative to Groundhog's Day. "I figured it would be a novelty like the Pet Rock," confesses founder Robert Bogart. "It never occurred to me I'd be doing it for 20 years." But the AAAA is still going strong, with about 700 members, now on a computerized database. Bogart thinks the aardvark's eccentricity attracts some members. All you have to do to join is send in six bucks and explain why you are interested in aardvarks. Belonging to the AAAA "ain't sex," one member wrote Bogart, "but it beats the hell out of pinochle." Bogart hopes someday to hold a convention of aardvark aficionados. "I think I'd like to meet these people," he says. "I think I would."

More than a century ago, Ralph Waldo Emerson urged Americans to trust their instincts and rely on themselves. With all due respect to Emerson (and the 40-member Ralph Waldo Emerson Society), our burdens have grown too large to shoulder on self-reliance alone. From FRUMPs to extraterrestrials, millions are finding that membership has its privileges. And although large associations give their members a slice of power, small societies are more fun.

"I've been coming to these meetings since I was 2," says Jim Smith jr. of Millsboro, Delaware. "Some of the older Jims have passed away, but a lot of the same faces keep coming back. To think that this society has survived 25 years, meeting around the country, bringing Jims together, is pretty phenomenal."

Just before closing their annual meeting, Jim Smiths put away their fun and face the future. Their society is fraying at the edges. Founder Jim Smith has died, taking with him a lot of the energy that held Jims together. For an hour they discuss how to maintain ties among hundreds of Jims scattered around the country. Incorporate? Delegate responsibility? Elect Jim Smith as benevolent dictator? After fumbling and feuding, Jims agree that after all these years they have a lot more in common than just a name. "None of us are related, as far as I know," says Budd Lake Jim of New Jersey, "but we've developed a friendship that keeps us coming back."

Strictly observing Robert's Rules of Order, Jim Smiths elect new officers to plan next year's Fun Festival in Seattle. Then Jim Smith makes a motion. Jim Smith seconds it. All Jims in favor? Meeting adjourned.

By Doug Stewart

All right, troops—fan out and find every last artwork

With the aid of volunteers throughout the country, Save Outdoor Sculpture! is helping us to rediscover our monumental heritage

It was during the bloody battle that took place at Chickamauga Creek in 1863 that James B. Steedman, a citizen of Toledo, Ohio, and a brigadier general in the Union Army of the Cumberland, earned himself an evocative nickname and a small measure of lasting fame. At a critical moment, Steedman seized his regiment's colors and dramatically led his wavering volunteers through a withering barrage of Confederate fire. Although the Confederates won the battle, Steedman emerged from that engagement unscathed to become Toledo's most famous Civil War hero.

The assault that finally did "Old Chickamauga" in didn't occur until 1979, nearly 100 years after his death. "A car ran right up the steps in the middle of the night, knocked over the statue and broke chunks off the granite pedestal, if you can believe that," says Nancy Turner, until recently the coordinator of Save Outdoor Sculpture! in northwestern Ohio, as she shows me around. The general was left lying on his back, one arm broken off and both legs jammed into his body. Today, the oldest outdoor sculpture owned by the city of Toledo is back on its pedestal, an unlit target at the end of a long, fast straightaway that veers sharply to the left at the last second. As I watch, a red pickup truck squeals to make the turn, adding another layer of rubber to the curve.

Motorists are not all that threaten the statue. Weathering has left the bronze so pitted and streaked that its contours are hard to make out. The badly chipped pedestal is marred by obscenities. Red spray paint drips luridly down from the general's eyes as though he were a victim in a slasher movie (opposite). Bees swarm around his hat, a sign that a hole has opened up somewhere.

Toledo's beleaguered general is certainly not the only outdoor sculpture in this country to have suffered this kind of humiliation. Of the thousands of sculptures that adorn the nation's landscape—not just war memorials and courthouse statues but zoo sculptures, schoolyard art and median-strip emplacements—nearly half need repairs or protection. An estimated one in ten will suffer irreversible damage if help doesn't arrive soon. The threats range from weathering (aggravated by air pollution) and vandalism, to floods, windstorms, encroaching vegetation, bird droppings, and assaults by lawnmowers, skateboards and snowplows.

Though people can quibble about taste, there's little question that letting our nation's outdoor sculptures crumble would make this country a drabber place in which to live. It would also leave us increasingly ignorant of our collective past. "The public sculpture of America offers a visual history of our country," says Elizabeth Broun, director of the Smithsonian's National Museum of American Art. "Losing these sculptures to the ravages of time would deprive us of this way of knowing what our ancestors cared most about." Fashions in art may change, she says, but each community's public art, new and old, evokes the traditions and the ideals that help make people feel a part of their community and of the country as a whole. "That's especially important today," Broun says, "when everyone is looking for things that can bind us together."

When outdoor art is neglected, the culprit isn't necessarily an uncaring community. In many towns the chief problem is uncertainty as to who, if anyone, owns a particular monument. "In the past, sculptures were typically put up by private subscription, then deeded to a city or town," says Susan Nichols of the National Institute for the Conservation of Cultural Property (NIC) in Washington, D.C. "But the donors didn't set aside money for maintenance. They didn't think it was important. You know: 'Vandalism? Oh my goodness, not in our town!' So the town would build a park for the monument and name it after somebody, then walk away." Public sculptures, as a result, have become the orphans of the art world.

To help reverse the decades of neglect, Broun's museum and Nichols' institute together launched a massive nationwide effort in the late 1980s called Save Outdoor Sculpture!, or SOS!, which Nichols directs. Nonprofit and largely volunteer, Save Outdoor Sculpture! has a threefold purpose: to compile a list of the nation's pub-

Red paint and graffiti trashed a Civil War general in Toledo; now on SOS! rolls, he is undergoing repair.

Photographs by Enrico Ferorelli

In Washington, D.C., SOS! director Susan Nichols is right at home with the Law Enforcement Memorial lion.

licly accessible outdoor sculptures, to identify which of these need to be fixed, and to help arrange for conservators to start doing the fixing. SOS!'s headquarters in Washington, housed within the NIC, has only four staffers; most of the work takes place in the field, where nearly 200 public and private organizations, from universities to arts councils to garden clubs, are officially tied into the campaign. SOS!'s $500,000 annual budget is supported by the Getty Grant Program, the Henry Luce Foundation, the Pew Charitable Trusts, as well as TimeWarner and other corporations, but as befits a fundamentally grass-roots undertaking, local grocery stores, banks and printshops have also chipped in.

Over the past four years, several thousand SOS! volunteers in all 50 states have been combing their communities to search out and assess local sculptures, both celebrated and obscure. To find out what to look for, I attend an all-day training session in Massachusetts led by state coordinator Lynne Spencer. The 18 volunteers on hand include a museum intern, a housewife, a young college administrator and his girlfriend, the head of a local historical society and her husband, and several young sculptors. We are told that any original, three-dimensional artwork that's easily seen from a public way is eligible for the survey. Bronze, wood, plastic, dried vegetation—anything goes. Most grave markers, however, are out; they generally don't fit the criteria, and with some 160 million in the country, more than a sampling would overwhelm the collection. "Don't judge things by their artistic value," Spencer warns us. "Tastes change." She herself has a personal interest in front-lawn sculptures. As for researching the whys and wherefores of contemporary sculptures, she urges us to call up the artists. "Don't be shy!" she scolds.

A few weeks later, I join SOS! volunteer Ed Margerum in a search for outdoor art in Newburyport, Massachusetts. Margerum, 57, is an unemployed industrial chemist from Salem who's already tallied more than 300 works of all kinds. "It gets you outdoors," he explains. With a yellow legal pad and a worn copy of a 1937 WPA guidebook in his hand, Margerum wanders up State Street, pausing to jot down vital statistics of a carved wooden shop sign and later a large iron sundial outside a bank. He interprets the SOS! guidelines rather loosely. "If it's carved or cast and has three-dimensional elements, I include it," he says.

Margerum has no art background, but he's a devoted history buff with a keen eye for detail. At an 1878 bronze statue of George Washington, he dutifully copies all of the pedestal's inscriptions—who the sculptor was, where the figure was cast, where the granite was quarried—in addition to recording the presence of some fluorescent-green Silly String on Washington's left boot. Noticing a crescendo of blackened fiberglass swans bursting from the center of a fountain in a pond nearby, he considers and rejects the idea of building a raft from a set of wooden skids along the shore, the better to examine the sculpture up close. For the most part, Margerum does his sleuthing on foot. "It's a good idea to take a walk around a town's parks," he tells me. "You're likely to come across a monument or two. You'll say, 'Wow, I never knew they built memorials to the heads of sewer departments!'"

Tributes to sewer chiefs may strike some art professionals as a downscale kind of art form, but these are exactly the sorts of pieces that SOS! wants to find. Even a sculpture that's esthetically undistinguished can offer telling clues to a community's past achievements, obsessions or calamities. The North Dakota survey came across an eight-foot-high stone monument in the shape of a broken tent pole rising out of a miniature tent; it was placed in memory of a pair of circus workers who were killed nearby when lightning struck their big top

Doug Stewart, a frequent contributor, has covered subjects from the Great Eastern *to* Consumer Reports. *He profiled Mitchell Wolfson in February '95.*

in 1897. The most notable outdoor sculpture in Cheshire, Massachusetts, is the replica of a press used to fashion a 1,235-pound cheese that local farmers shipped to the White House as a New Year's gift in 1802.

Descriptions of these and other curiosities are all being folded into the Inventory of American Sculpture, a computerized master list at the Research and Scholars Center of the National Museum of American Art. Rachel Allen, the center's chief, says the list now includes more than 50,000 works, both indoor and outdoor, with SOS! teams sending in thousands of new outdoor listings every month. The ongoing compilation is public and freely available on the Internet (telnet to **siris.si.edu**). "It's primarily a research tool for art historians and other professionals," says Allen, "but we also get inquiries from people who say, 'My grandfather was a sculptor, and I'm trying to find where all his sculptures are.'" The database has already provided quick answers to a stage-set designer wanting a list of outdoor Joan of Arcs (there are eight in the survey so far), a high school student in South Carolina wondering how many Vietnam memorials exist (29 in the last tally) and a TV company scouting for outdoor statues of "Blind Justice" (four and counting).

In deciding what to include and what to exclude on their own lists, local SOS! chapters are free to stretch the guidelines. In New Mexico, where folk sculptures outnumber bronze dignitaries, the state SOS! list includes a huge scarecrow-like creature named Kookooee that's designed to be ritually burned, and an enshrined tortilla whose scorch marks are said to reveal the face of Jesus; they are still searching for the rumored outhouse painted to resemble the Taj Mahal. New Mexico is vast and sparsely settled, and former statewide coordinator Richard Hooker does a lot of surveying. Hooker is a Santa Fe sculptor who is passionate about art and loves

Among the works documented by SOS! in New Mexico is the tile-covered home of ceramist Beverly Magennis in Albuquerque. She began this project eight years ago, using tiles that were given to her or that she found.

Nicasio Romero built his meditative piece *Are You Coming? Or Are You Going?* near El Ancon, New Mexico.

Wall at Magdalena rodeo grounds bears the handprints of schoolchildren who helped adobe artist Pat Beck.

In a Gallup park, Armando Alvarez's 310-foot-long steel sculpture *We the People* has a total of 98 figures.

The dude's hat brim in *Going for Water,* made by Gordon McMath in Mountainair, is an overturned tractor seat.

to drive. It's a useful combination: he's already covered more than 10,000 miles as he crisscrosses the state with his cameras, clipboard and tape measure to document its endlessly imaginative public art.

"I don't want to miss anything," he explains to me when I join him for a three-day, 600-mile foray through the state's high central plains. In the dusty railroad town of Mountainair, we stop at the old Shaffer Hotel, built in the 1920s by the late Clem (Pop) Shaffer, a blacksmith and horse trader turned folk artist. An elaborate concrete fence along the sidewalk next to the hotel is studded with hundreds of delicately hued stones arranged into ostriches, giraffes, snakes and monsters. "They say, 'If you ever go to Pop Shaffer's, make sure you push the Devil's Gate,'" Hooker tells me as we take turns swinging a creaky door in the fence for luck (right). The designs are spare—one dog is just eight flat stones—but delightfully expressive. Hooker examines the fence for damage, measures it and shoots snapshots for the archive back in Santa Fe.

Earlier he'd learned of a lawn sculpture on a street behind the hotel, and we walk back to take a look. On a small corner lot stands a bowlegged pioneer family and their wagon, all made from rusted-out machine parts and farm tools. The homeowner, Gordon McMath, a taciturn 71-year-old in grease-stained blue coveralls, is lying under his car, working on the engine. He slowly slides out and bids us how-do. We learn he's a retired appliance repairman, which accounts for his choice of medium. McMath walks over and points out his sculpture's special features in a deep, deadpan drawl.

"This is Whitey, and this is Gray," he says, indicating the two middle draft animals pulling the buckboard. Their torsos are washing-machine motors; their tails, rusted shovel blades. "And these other two are 'kinard' birds. That's k-i-n-a-r-d." Hooker and I each dutifully write this down. "The reason they're called 'kinard' is you kin 'ardly tell what they are." McMath calls the tableau *Going for Water*. "You will notice the wife is carrying the buckets. The husband is carrying a cup to get a drink when they get there." Yup, those times are long gone, he says grimly, as his wife, Biddie, listens with amusement. She tells us proudly, "He had never done this before. He just took the notion one day and started working on it." Hooker loves the piece and elicits permission to include it in the Inventory.

New Mexicans seem to take a broader view of art than do, say, Bostonians. Trash art and automotive art, and trashed-automotive art, are plentiful and much admired. "We have six good muffler men in our survey," Hooker says, referring to folk-art figures that auto mechanics tinker together from worn-out mufflers and pipes. Two cars on poles, used locally to advertise wrecking yards, are also on the survey, in a category that Hooker has designated Monumentalized Objects.

After swinging the Devil's Gate at Pop Shaffer's hotel for good luck, Richard Hooker measured it for SOS!

The dramatic landscape of New Mexico inspires much of its art, too. In the middle of a field of tall grass a stone's throw from the Pecos River in the tiny village of El Ancon, we stand at the foot of a rough-hewn ladder that ends in midair. At the top of the ladder is a charred wooden door bristling with nails. Behind this enigma, across a stretch of windswept rangeland, rises a huge mesa. "I've had a preoccupation with that mesa for a long time," the ladder's creator, Nicasio Romero, tells us almost apologetically. "This piece, called *Are You Coming? Or Are You Going?*, is a meditation piece for me. I'm trying to see the mesa in different ways but always the same view." Romero is an outgoing, unpretentious man with a baseball cap and a bushy, graying beard. In an informal sculpture garden near his adobe house, he shows us four crude-looking, chest-high adobe domes. They're bells, he explains. "When they're finished, you'll feel the surface with your hands, and if you meditate and listen hard enough, you'll be able to hear something. I'm not crazy, but I'm convinced you will. It's not a physical thing; it's a metaphysical thing." Like the earth they're made of, the bells will change over time. Eventually, Romero says, they'll weather away completely.

Allowing public art to wash away in the rain isn't nor-

Students pitch in to help document a sculpture group called *Family* along the riverfront in Toledo, Ohio.

mally considered desirable, of course. Technically, however, that's what's happening to all of our outdoor sculpture. Every year, for example, rain washes about 80 pounds of copper from the Statue of Liberty (enough to mint about 13,000 copper pennies). "All an art conservator can do is slow down the rate of deterioration," says Arthur Beale, director of objects conservation and scientific research at Boston's Museum of Fine Arts and a key figure in starting SOS! "The question is: What rate of weight loss is acceptable?" Ironically, he says, the classical revival of the 19th century turned to the noble materials of antiquity, marble and bronze. "But these materials have an Achilles' heel: they're susceptible to acid, particularly sulfuric acid." Today's acid rain and snow are hastening the erosion of monuments that were expected to last forever.

A few blocks along Back Bay's leafy Fens from his museum is a public sculpture that Beale calls a prime example of unmaintained statuary: "It's a crime what's happened to it." Still quietly exquisite, the sculpture is a memorial to spy, convict and poet John Boyle O'Reilly, an Irish nationalist who settled in Boston after a dramatic escape by sea from an Australian prison camp in 1869. Backed by an ornate granite slab, a larger-than-life bronze bust of O'Reilly, looking dashing in an open-necked shirt, gazes tranquilly past the traffic hurtling along Boylston Street. Hidden from view unless you take a dirt path behind the granite block is an allegorical grouping of three large seated figures. An inscription reads "Poetry and Patriotism Give of Their Laurel and Oak, from which Erin Weaves a Wreath for Her Heroes." The sculptor was Daniel Chester French, best known for the seated Abraham Lincoln of the Lincoln Memorial in Washington, D.C.

Dedicated in 1896, the O'Reilly Memorial once sat on an adjacent traffic island, visible from all sides, but as cars supplanted carriages it became a traffic hazard. Now shunted off to one side, it is shadowed by a stand of oaks. With obscurity has come neglect. Up close, the bronze is clearly in distress. O'Reilly's nose appears badly sunburned but in a hue of swimming-pool green. The bronze everywhere is pitted, and much of the surface is either bright green or dull black.

Fortunately, private funds have been rounded up to rescue the sculpture. I stop by the site one morning to talk with Henry Lie, whom the city of Boston has contracted to do the four-day job, and who usually spends his time directing the art conservation center at Harvard University. "The black is actually a sooty crust," Lie (pronounced LEE) tells me as an assistant slathers Strypeeze over the feathers of Poetry's huge left wing to remove what's left of an old protective coating. "Usually black is more nearly original in its surface than the green areas are, even though I don't think there's much original surface left on this piece." The green is the result of corrosion caused by acid rain. Even more distracting are lighter streaks, the product of rivulets of melting acid snow each winter. "It's very hard to read the play of light across a three-dimensional surface when it's streaked like this," Lie says, "so the corrosion is both a physical problem and an esthetic one."

A shower to end all showers

Lie fires up a high-pressure water cleaner and begins blasting the sculpture's surface with water at 2,500 pounds per square inch. The spray removes loose corrosion while washing away the solvent. Foaming water and wads of leaves and dirt fly out of crevices as the bronze trio submits to the assault with stoic dignity. (Sand-blasting a sculpture is now deemed almost criminal. Cleaning a corroded bronze with pulverized walnut shells, a softer medium, is more common.) Later, I watch Lie brush on a coat of cranberry-colored goo, beginning with Patriotism's sandaled left foot. With his other hand, Lie heats the foot with a large blowtorch; its surface instantly turns rust-brown. After a protective coating is applied, he explains, this thin layer of intentional corrosion will take on the deep lustrous brown of the sculpture's original patina. It won't stay that way, he warns, unless it's waxed at least once a year thereafter, preferably twice.

That important outdoor sculptures like this are allowed to deteriorate isn't surprising when one considers

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Boston Museum of Fine Arts conservator Arthur Beale, who helped start SOS!, lends his expertise on repairs.

how nearly invisible they are to the public at large. In an informal poll of passers-by, I determine that no one had ever noticed the O'Reilly Memorial until the scaffolding went up around it this week. "I was just looking at it for the first time, actually," says a young man who sits eating his lunch—with his back to the monument—on one of the granite benches that partially encircle it. As for whom the sculpture depicts and why, he and others I ask have no idea.

An underlying goal of SOS! is to combat this obliviousness, especially among young people for whom both art and history can seem musty and irrelevant. In Toledo, Nancy Turner put together an upbeat educational video set to music called *I Am a Sculptor.* It includes interviews with young children discussing their favorite outdoor artwork as well as footage of sculptors at work. "I had the idea that if kids could understand that artists put their heart and soul into a piece of sculpture, maybe they would learn to care about it," says Turner, a painter with the drive of a seasoned political activist.

General Steedman notwithstanding, Toledo is a sculpture-friendly city. By law, 1 percent of all capital spending, even for sewer extensions, now goes to public art—not just creating it but, equally important, maintaining it and teaching people about it. To help persuade young Toledoans that this sort of effort is worthwhile, Turner recently shepherded a dozen students from a local youth program through a quickie SOS! training session. As honorary SOS! volunteers, they then set out to survey a handful of Toledo's city-owned outdoor sculptures, most of them contemporary pieces.

At a playing field on the southwest side of town, I join the group beneath a monumental work called *Play Ball!* by David Lepo. The piece consists of two curved, semi-abstract towers of welded steel. If you stand in the right place and squint, you see a pitcher in mid-delivery and a batter straining to meet the ball. The students are having trouble with the concept.

"So what is that design? It looks like a bird," says K.V., a jaunty 18-year-old in wraparound sunglasses. Turner, a onetime English teacher, tries to explain the pitcher's posture to him.

"Well, how come they don't have no heads?"

"You're supposed to use your imagination, K.V.," says one of the other adults.

"I just did!" he says scornfully. Other visitors before us have accepted the sculpture more readily, to judge from dents in the hollow steel bat. Kids have apparently taken to pitching balls at it, Turner tells me, laughing. "It didn't bother the sculptor. He thought it was cool."

On a riverfront esplanade in downtown Toledo, we crowd around the bronze figure of a pensive teenage girl in a bathing suit sitting hunched over at the water's edge, staring out across the water. "This one has a wax coating. Can you feel it?" Turner asks. The students take turns rubbing the dark-brown metal of the girl's bare back. The sculpture is part of *Family,* a grouping of life-size figures by Penelope Jencks. The other four family members are some distance away; the teenager has her back turned to them. The girl was modeled after the artist's daughter, Turner explains, and like most teenagers, she wanted to be left alone.

"That for real?" K.V. asks. This gets his attention, and he's uncharacteristically quiet for a moment or two as he studies the solitary figure.

Someone has managed to pry off the straps from one of the bathing-suited girl's bronze flip-flops, yet this sculpture, like *Play Ball!,* is remarkably free of graffiti. Says Turner, "People like these pieces better than some of the others, and people don't write graffiti on things they like." If a sculpture is allowed to rust or if weeds are growing up around it, "people figure 'the community doesn't care about this. Why should I?'"

With this in mind, Turner has seen to it that General Steedman is finally undergoing a professional overhaul this year. When he's restored to his high pedestal, she is hoping to persuade local Civil War buffs to set up a period encampment in the adjoining park as part of the rededication festivities. As a public-relations move, a shindig like this will draw a bigger crowd—and bring Old Chickamauga's exploits more convincingly to life—than would just another speech to the usual suspects rounded up from local arts and veterans groups.

If Save Outdoor Sculpture! succeeds in its goals na-

tionwide, it will do so indirectly, by stimulating towns and cities to take pride in their public art and to take steps to protect it. Already, one of SOS!'s key achievements has been to bring thousands of newcomers into the world of art preservation, if only peripherally. In many towns, mail carriers and door-to-door salespeople have been enlisted to keep a lookout for out-of-the-way monuments while making their appointed rounds. In Cleveland, SOS! helped organize a downtown parade in which schoolchildren dressed up as their favorite sculptures. SOS! groups in Georgia put together an 80-mile self-guided tour of outdoor sculptures from Atlanta to Athens, and other communities are planning shorter tours for bicyclists. In 25 states where surveying is completed, SOS! is now shifting its focus to teaching volunteers the ins and outs of raising money in their communities, attracting publicity and contracting for a conservator's services.

"This would have been absolutely impossible without volunteers," says SOS! director Susan Nichols. The people who volunteer to survey sculptures, she says, soon become public-art advocates and watchdogs in their own neighborhoods, the kinds of people who organize a car wash or a bake sale to replace a warrior's missing sword, who report vandalism instantly and perhaps trim shrubs around a pedestal—people for whom outdoor art is no longer invisible. Says Nichols, "You can't put a price tag on that."

Artist Holly Hughes used materials recycled from New Mexico cattle ranches for the bull in *Trail's End.* It is among the 15,000 works, and counting, that SOS! has entered into the Inventory of American Sculpture.

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At Washington's Olympic National Seashore, Gordon Hempton adjusts mikes in dummy head he calls "Fritz." He is recording the rumbling sounds produced by nearby driftwood as it resonates with the crashing of the surf.

By A. Richard Immel

Shhhh . . . those 'peculiar people' are listening

They're out there in the boondocks, doing their best to record the pure sounds of nature while there are still some quiet places left

As all good hunters do, we gather in the chill, predawn mountain air for a last-minute equipment check before fanning out into the woods. This is our second day in the field. Yesterday we combed marshes in California's Sierra Valley for waterfowl. Today, we've broken up into twos and threes to stalk the red fir forest that crowds Yuba Pass north of Lake Tahoe.

It's all over in an hour. As the sun rises, we straggle back to the clearing where the off-road vehicles and vans that brought us up here are parked. We wolf down cold pastries, guzzle hot coffee and begin telling war stories about the morning's events. We won't know for a while exactly what we've bagged, but indications are promising. "Did anyone get that barking dog?" Several heads nod.

These "hunters" are members of a little-known organization called the Nature Sounds Society. The occasion is the society's ninth annual field workshop, and the prey isn't wildlife but the sounds of wildlife. Instead of shotguns and rifles, the hunt is conducted with shotgun microphones and portable tape recorders.

In a rustic dining room at a San Francisco State

Photographs by Chad Slattery

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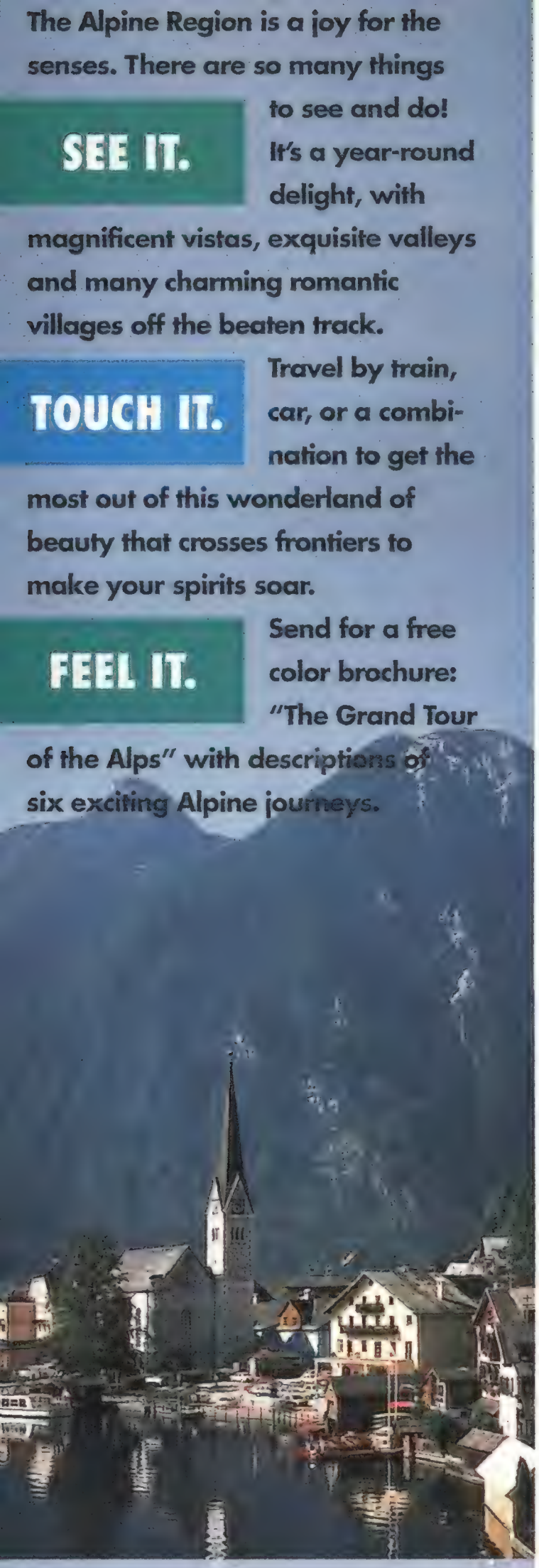

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University field station, our home base for the weekend, we huddle around an expensive stereo sound system and showcase some of our trophies. Andy Switzer, graced by beginner's luck, plays his recording of the heated squawking of two woodpeckers scrapping over territory. It's a striking—and rare—recording, since male woodpeckers seldom get close to each other. Lyman Miller plays the exuberant howl of a young coyote, and Kelly Newman's tape erupts with the static-like crackling of ants trying to kick her microphone out of their anthill. Bill Gilbert gives us the clear, musical tones of a yellow-headed blackbird.

The remarkable thing about these recordings is not just their superb quality but the diversity of the people who made them. The Nature Sounds Society is a motley crew of artists, students, laborers, teachers, engineers, retirees and musicians with a common passion for eavesdropping on the wild. For them, as for most of us, there is magic in the roar of a mountain waterfall, the call of a loon and the croaking of pond frogs. But with their electronic ears, they hear subtle things we don't even know exist, like the muffled rustle of an owl's wings, the vibrations of driftwood on a windswept beach and the gliding movement of a snake across the ground.

Some of these sound buffs are skilled technicians and nationally recognized experts in bird identification. Others are rank newcomers whose greatest previous audio challenge came from the headphones of a Walkman. Newman is working on a master's degree in marine biology. Gilbert is nationally known for his research on the orange-crowned warbler. Miller works at Hewlett-Packard developing materials to make hard drives; on weekends he does recordings of the endangered clapper rail for a Bay Area conservation group. Retired accountants Fred and Ginny Trumbull have been record-

The author, a former Wall Street Journal *reporter, writes about technology and Western lore from his California home.*

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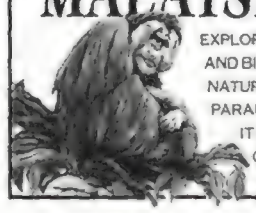

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ing nature for 45 years. Their sounds of birds, coyotes and desert creatures have been used by the state of Hawaii, National Public Radio and the Arizona-Sonora Desert Museum. The society has even changed the lives of some members. Jazz musician and "sound designer" Jason Reinier and Catherine Girardeau, an audio text editor for an electronic newspaper, had their first date at Point Reyes while recording ocean sounds. They were married a year and a half later.

Paul Matzner is the godfather of the group. Curator of the California Library of Natural Sounds at the Oakland Museum, he organized the society he now affectionately calls "the peculiar people" in 1983. By then, he and a few other enthusiasts had built a small but impressive archive, and requests were beginning to come in from people who needed nature sounds for movies, educational projects and exhibits. Many of those folks were making their own recordings, as well. "They were all pioneers in the field," Matzner says, "but they didn't know that anyone else was doing the same kind of work." They needed a way to compare notes, so the Nature Sounds Society was organized. Much of its work has ended up in the Oakland Museum's sound library, which now includes recordings of everything from ants to elephant seals—more than 260 species of California fauna in all.

The society has attracted many of the nation's prominent nature recordists either as members or advisers. Bernie Krause, whose hugely popular habitat recordings are sold through the Nature Company's chain of environmental stores, is a longtime member and technical adviser. Emmy Award-winning recordist Gordon Hempton has appeared at society workshops to share his recording techniques and philosophy.

Taping nature's sounds is for many practitioners much more than just a hobby. "If we don't get this stuff now, we may never get another chance," says Greg Budney, curator of the Library of Natural Sounds at Cornell University.

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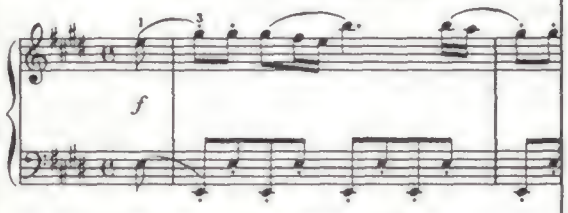

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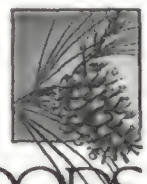

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In his lab, Bernie Krause transforms raw field recordings into "sound sculptures"; the "voiceprints" (at right) are of lemurs in Madagascar.

"It's our job to document wildlife and habitats before they disappear." Budney is doing his part. Cornell has the world's largest nature sound archive, with more than 100,000 recordings, and it's adding 5,000 more a year.

Recording of natural sounds had to await the development of equipment that could be used outdoors. The big breakthrough came in the late '50s and '60s with the introduction of relatively small open-reel and cassette tape recorders that operated on batteries. The latest revolution in recording technology is the digital audio tape (DAT) recorder, which eliminates tape hiss.

To find out how an expert records birdcalls, I recently joined Paul Matzner on a field trip. It was before dawn when Matzner emerged from his van loaded for bird: he had a tape recorder slung over his shoulder and was wearing earphones plugged into a parabolic microphone dish. Measuring two feet across, the dish thrust out from his chest like a shield. With all of that paraphernalia, Matzner looked like a walking satellite.

We were in the Sacramento National Wildlife Refuge, surrounded by thousands of wintering snow geese, white-fronted geese, Canada geese, tundra swans and sandhill cranes. "We're going to make the best recording ever made," Paul said. "That's a little joke among nature recordists. Every time we go out, we're going to make the best recording ever made. We have to get started this early in order to avoid the birders and the hunters. When they show up, it's all over."

Matzner had spent the previous evening checking out his recording equipment and methodically taping up the metallic ends of the zippers on his clothing and equipment pouches so they wouldn't clink in the field. Avoiding extraneous noise is an obsession among wildlife recordists. I was gently chided for the swishing sound made by my sleeves every time I raised my binoculars to scan for birds.

We recorded the morning fly-out of thousands of black-and-white snow geese as they moved into the surrounding ricefields to feed, and later captured the flight of some Canada cacklers. Matzner said the recording was great—except for the sound of my handclap, which is what startled the cacklers into the air. The fact that we induced the birds to fly bothered Matzner because it interfered with their normal behavior. Provoking animals and birds to get a vocal response is considered a necessary evil among many wildlife recordists. "Most animals make a sound for one of two reasons," Matzner explained, "territorial warning or aggression. For either, you need a significant other antagonist."

A spectacular taping of a flock of white-fronted geese honking close overhead was suddenly ruined by the blast of a train whistle blaring across the floor of the valley. "Well, there's another one for the quietude file," Matzner said, snapping off his recorder in disgust. The quietude file is his collection of tapes ruined by the intrusion of airplanes, trains, cars and people.

We left the refuge and its freeway and train noises for the quieter back roads of California's rice country. Matzner suddenly braked to a stop. On the side of the road were 300 tundra swans resting in a farmer's flooded ricefield. Even to my untrained ear, their voices were impressive. The acoustics were complex. The foreground sounds reflected off the farm buildings, while the droning of thousands of snow geese in a field behind the buildings acted as a sonic backdrop.

We climbed out of the van, and Matzner became increasingly excited as he scanned the scene through his headphones. "This is really incredible," he said. "I'm getting the swans in the foreground and the snow geese in the background. It's like a meeting of wildlife."

Matzner switched to his heavier but more dependable reel-to-reel machine. For the next hour and a half I quietly fed him reels of fresh tape, while he fought fatigue from carrying the 20-pound recorder and parabolic microphone reflector.

As we climbed into the van, Matzner was jubilant. "Incredible," he said. "This *is* the recording of a lifetime."

The sounds of nature are becoming a hot property. Zoos and museums now use recordings to add pizzazz to their exhibits. Some are short bursts of the cries and calls of a particular species continuously replayed in a loop. Others, like those in the Oakland Museum, are designed to re-create a sense of space and time by moving sounds among several speakers and keying them to a particular time of day, such as dawn or dusk.

Movies and television are also showing more interest in authentic wildlife

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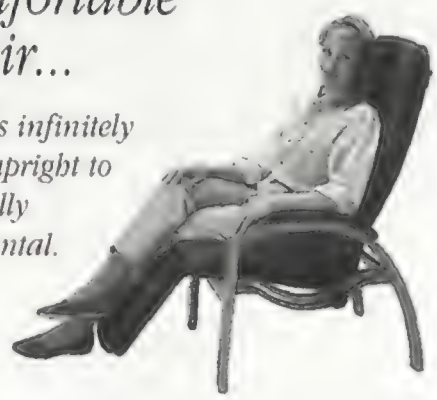

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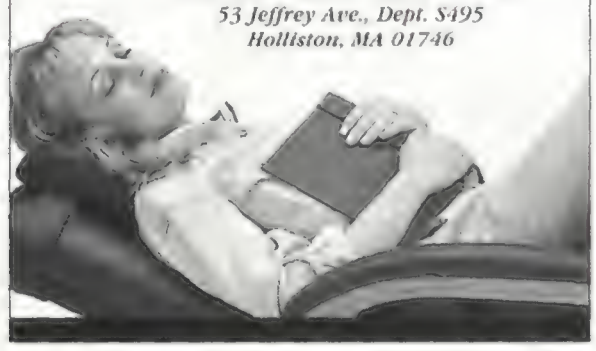

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sounds. Matzner provided sounds for the Harrison Ford film *The Mosquito Coast*, and he and Greg Budney collaborated to produce recordings for *Land of the Eagle*, a documentary on California wildlife habitats that aired on PBS.

At the consumer level, nature sound tapes and CDs are proliferating. On one end of the spectrum are educational tapes like Cornell University's *Field Guide to Bird Song*, a companion to Roger Tory Peterson's famous birding manual; at the other are various combinations of natural sound and New Age mood music designed to accompany such activities as meditating, writing and lovemaking. Some of the most popular are birdsongs and gurgling streams for meditators, flowing sounds like rain for writers, and—no surprise here—thunderstorms, ocean waves, and leaves vibrating in the rain for lovers. As for what's in between, listeners can tune in to everything from grunting elephant seals to hissing barn owls, and there's a particularly rich selection of rain forest creatures to eavesdrop on.

The nature-sound share of the record business reached $100 million in 1994, estimates Krause, and it's expected to keep growing rapidly. Nobody has done better in this market than Bernie Krause. His 50 CDs have sold more than a million copies, and $300,000 of the profits has been donated to the Nature Conservancy.

Krause, who at 56 still generates the infectious enthusiasm of a man who loves his work, was trained as a musician. He replaced Pete Seeger in the Weavers folksinging group back in the '60s. He played in studio bands in New York and Los Angeles before returning to college for his PhD in creative arts and bioacoustics. Krause worked in film sound effects, did Hollywood sound tracks, introduced the Moog synthesizer to rock groups such as the Beatles and the Rolling Stones, did "forensic" recording analysis—he worked on the Watergate tapes to make them easier to hear—and in the mid-'80s put together a tape of whale feeding sounds to lure a wayward young humpback whale out of the Sacramento Delta where it had lost its way. It was Krause, bored with synthesized sound a few years after he popularized it, who in 1968 was the first to publish a recording based on nature sounds.

Steven Feld is another musician—a jazz trombonist—who found his way into nature recording. For the past 18 years the University of Texas ethnomusicologist has been recording and studying the voices of the Kaluli, the

Veteran recordist Fred Trumbull began in 1949 with a 33-pound wire recorder. Catherine Girardeau's digital audio tape (DAT) machine weighs just 17 ounces.

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indigenous people who live in the rain forests of Papua New Guinea. In 1991 he won a $260,000 MacArthur Foundation "genius" award. When Grateful Dead drummer Mickey Hart heard some of Feld's earlier tapes on National Public Radio in 1984, he offered to make his state-of-the-art recording and production facilities available. The result is a remarkable recording of the daily singing and work routine of the Kaluli against the background sounds of the rain forest.

"There are duets with birds and crickets, a woman singing with the water, an early evening rainstorm, the ritual sounds of drumming and ritual ceremonial singing, and then the sounds of deep night and owls," Feld says. "What is unique about the recording is the way the Kaluli mimic the sounds of the jungle and water and birds around them in their singing."

The issue of what is authentic and what isn't, is not as simple as it may seem. Most recordists agree that all taped sound, because it passes through mechanical intermediaries—microphones, magnetized tape, amplifiers and speakers—is, to some degree, artificial.

Krause explains that you can't just put a microphone on the beach and expect to get a recording of what your ears hear. "All you'll get is white noise," he says. That is acoustic jargon for sound that has no distinguishing features. "As soon as we've taped something in the field, we have to transform it into something that gives the listener an illusion of that place."

The way most acoustical artists do that is to record multiple tracks from different vantage points and then "mix" them together in the studio. One day Krause took me to the shoreline of the Marin Headlands in the shadow of the Golden Gate Bridge to show me how it works. Using two microphones mounted together on a tripod (one for wide dispersion, the other focused straight ahead) he first recorded the overall sound of the waves from about 20 feet behind the surf line. Then he moved the tripod closer to the sea to

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record the sounds of the surf washing in on the sand, and then moved it still closer to record the sounds of the waves lapping around a rock.

Back in his studio, he put the tapes on his mixing machine so we could listen to them simultaneously. He deftly changed the volume until the recorded sounds were similar to what we had heard on the beach.

Paul Matzner mixes field recordings for his commercial releases, too. Steven Feld's *Voices of the Rain Forest* contains 8 tracks to create the presence of a woman singing against the background sounds of a waterfall, and Bernie Krause typically mixes 50 or 60 tracks on his jungle CDs. Just about everyone seems to agree that mixing sound is the only way to achieve the acoustic reality of nature. Everyone, that is, except Gordon Hempton.

Hempton's recording technique is unorthodox. His microphone is a plastic model of a human head that looks as if it could have been taken from a mannequin in a department store window. "Fritz," as he calls his bald, humanoid microphone holder, has flexible outer ears that are modeled after human ears and serve the same function: to funnel external sounds

Decked out in recording gear, Paul Matzner looks like a walking satellite.

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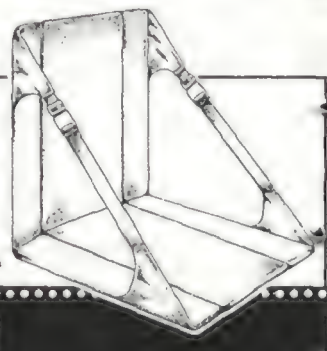

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Nature-recording sales are booming, with CD titles ranging from purist Hempton's *Dawn Chorus* to Krause's jazzy mélange *Gorillas in the Mix.*

into a pair of supersensitive microphones. Hempton creates his sonic soundscapes solely by the way he positions Fritz. Once he has made a recording, Hempton does not mix the sounds. He only removes the defects caused by imperfections on the tape surface, so what Fritz "hears" is exactly what the listener hears.

Gordon Hempton brings new meaning to the word "purist." He meticulously scouts out sites for his soundscapes. He listens intently over long periods of time, a day or sometimes several days, before he sets up his microphones. Hempton is totally in touch with his environment as a listener, and he is committed to bringing what he hears to a wider audience.

Now 41, Hempton took a job as a Seattle bike messenger in 1981 to finance his early nature recordings. He claims he developed his listening skills on the streets of Seattle in order to survive in the traffic. Now he makes a living producing exquisitely delicate recordings of nature that are the envy of his peers. The Smithsonian's National Museum of Natural History elected his work to promote and sell

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in the museum shops because of its authenticity. Hempton hears the music of nature in the writings of Mark Twain and John Muir and has turned these observations into recording projects; last year he and Fritz retraced Muir's 255-mile walk from San Francisco to the Yosemite Valley, re-creating where possible the soundscape that Muir himself experienced on his journey.

In 1993 Hempton won an Emmy Award for the sound portion of *The Vanishing Dawn Chorus*, a PBS documentary. He zigzagged 70,000 miles all over the globe recording the early-morning sounds of birds and animals.

Hempton is in the vanguard of the quietude movement, the effort by environmentalists and nature recordists to get out the word that places of silence are as endangered as our disappearing flora and fauna.

To those who appreciate natural sounds, man-made noise is the enemy—and it's more serious than a mere distraction. The roar of a dune-buggy engine can temporarily disable a reflexive defense of the desert kangaroo rat against one of its archenemies, the sidewinder rattlesnake. The rat normally can hear the snake at 30 inches, which gives it time to kick sand in the snake's eyes and escape. But the engine noise deafens the rat and virtually eliminates its defensive hearing zone. Until the rat's normal hearing returns, several days later, the snake often wins in an encounter.

Those who record nature sounds have quantified the loss of quiet places. Bernie Krause says there is now almost no place on Earth—including the North Pole, Antarctica and the dense forests of Indonesia and the Amazon—that is free of aircraft overflights, the buzz of chain saws and other human clatter. Krause remembers when it took 20 hours to get 15 minutes of usable recorded material. "Now it takes 200 hours," he says.

In 1984 Gordon Hempton surveyed 21 places in Washington State where he could record for 15 minutes at a stretch. Five years later, those clear

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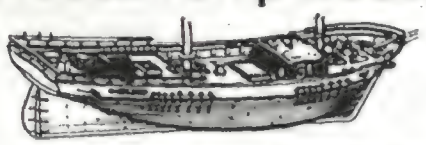

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recording times had been reduced at 18 of the sites to as little as 90 seconds.

Hempton has proposed that the National Park Service set aside one square inch in each of its parks and monuments as a noise-free area. "Who wouldn't give an inch?" he says slyly, "one square inch of peace and quiet." Hempton is well aware that such a proposal amounts to the creation of a noise-free zone many miles in circumference and extending up into space. He is now seeking funding for an acoustic survey to locate feasible one-inch sites in the ten national parks on the UNESCO World Heritage List.

Given the amount of time the recordists spend in the wilderness, most have stories to tell about narrow escapes. Bernie Krause likes to show visitors a botfly larva that was removed from his head and now resides pickled in a bottle in his studio. In 1987, when he was working at the camp of the late primatologist Dian Fossey in Rwanda, he was surprised by a silverback gorilla that grabbed him from behind and tossed him into the bushes like a doll. His most sobering incident occurred in Tanzania when he encountered a spitting cobra on a mountain trail at chimpanzee expert Jane Goodall's research station, where he had been working. Krause hurled himself out of the way of the flying venom but cracked two ribs in the fall. "I realize my reflexes aren't as good as they were ten years ago," he says. It is one reason why he's cut his field work to three months a year.

Gordon Hempton has had his share of near misses too. He recalls a terrifying moment in the Australian outback when he had to wade—without causing so much as a ripple—past a bunch of feeding crocodiles to retrieve Fritz. He also has taped evidence of his own sixth sense kicking in to warn him of danger. When he was in Sri Lanka recording frogs and dripping water in the rain forest, he suddenly had an anxiety attack. He tried to rationalize the situation, but instinct won out and he took off, leaving his recorder behind. He eventually retrieved his equipment but didn't check the tape until four months later. "I heard my footsteps go away, and then I heard a leopard come out of the woods. I was being a listener, I was being a whole-body listener, and my rational mind was trying to fight it."

We must all become better listeners, Hempton believes, as do all of the "peculiar people." "I have twice tried to walk away from this endeavor because it has become too difficult, too trying emotionally, too frustrating and too expensive," confides Hempton. "But I do have hope for the future, so I just keep the tape rolling, keep my ears open, and things do happen on the positive side."

Parabolic reflectors turn Ginny Trumbull (center) and fellow Nature Sounds Society members into superlisteners, able to hear even ants kicking.

Smithsonian Highlights

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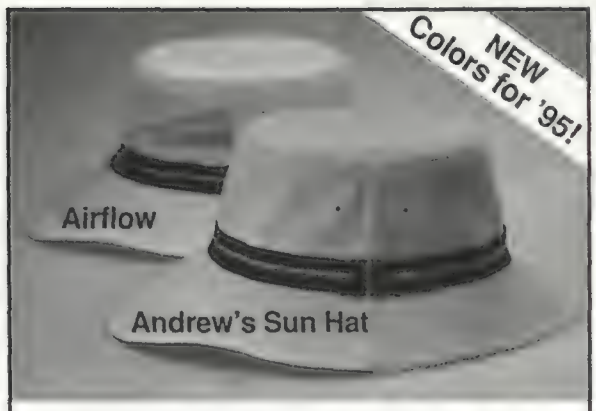
Smithsonian Craft Show

The 13th annual Smithsonian Craft Show, sponsored by the Women's Committee of the Smithsonian Associates, will be held April 27-30 at the National Building Museum, Fourth and F Streets, N.W. Artists from across the United States will exhibit and sell a variety of crafts. There will be an admission fee. For information, call (202) 357-4000.

Musical Weekend

The 23d annual Smithsonian Musical Weekend, sponsored by the Friends of Music at the Smithsonian, will be held April 28-30. Highlights include performances by the Miami City Ballet and the Smithsonian's Chamber Music Society, and an opportunity to visit the Smithsonian Craft Show. Call (202) 973-2118 or (202) 973-2192.



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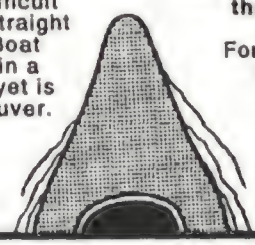

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Special April Exhibits, Events

National Air and Space Museum
Aerial Inspirations: Silk Batiks by Mary Edna Fraser (through June 4) Large-scale silk batiks portray the artist's vision of land, sea and sky.
Beyond the Limits: Flight Enters the Computer Age Major gallery explores the computer revolution in aerospace.
Universe of Illusions (runs indefinitely) Einstein Planetarium show takes a look at some of the mysteries in the history of space exploration.

National Museum of Natural History
Ocean Planet (April 22-January 2, 1996) Major exhibition examines the richness and complexity of the Earth's oceans—computer animation, dioramas, videos, artifacts, specimens, models.
Gem and Mineral Hall Gallery is closed for renovation until December 1996. The Hope Diamond is on view on the second floor of the Rotunda.
Giant Squids Permanent exhibit showcases the world's largest invertebrates.

National Zoological Park
Amazonia Permanent installation re-creates a microcosm of the world's largest rain forest and river habitat, and explores its diverse wonders.

Tired Feet (1936) by Georgette Seabrooke Powell is in Anacostia Museum exhibit.

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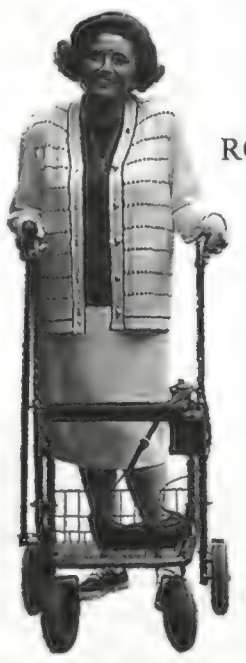

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National Museum of American History
"and they called us 'Colored'" (through April 22) Photographs taken from 1914 to 1936 present an intimate portrait of life in Seward, Oklahoma, a town built by blacks in the late 19th century.
Science in American Life Permanent exhibition tracks advances and discoveries in science over the past 125 years.
American Encounters Permanent exhibit focuses on the American Indian, Hispanic and Anglo-American cultures of New Mexico's Upper Rio Grande Valley.

National Postal Museum
Located next to Union Station on Capitol Hill, the new museum presents exhibitions tracing the history of the nation's mail service.

Freer Gallery of Art
On the River (April 1-January 1, 1996) Hanging scrolls, panels, handscrolls, album leaves and fans, dating from the 13th to the 19th century, illustrate everyday life along a river in China.
Beyond Paper: Chinese Calligraphy on Objects (through April 21) Clay, lacquer, metal, jade, bamboo and wood objects date from the 7th to the 19th century.

Arthur M. Sackler Gallery
A Basketmaker in Rural Japan (through July 23) Woven bamboo backpacks, fishing creels and storage baskets by Japanese basketmaker Hiroshima Kazuo.
Landscape as Culture: Photographs by Lois Conner (through May 30) Large-format platinum prints.

National Museum of African Art
Royal Benin Art in the Collection of the National Museum of African Art (closes for renovation for three months starting April 24) Works from the 15th to the 19th century include royal commemorative heads, figures and plaques.

Hirshhorn Museum & Sculpture Garden
Directions—Cindy Sherman: Film Stills (through June 25) Photographs made in the late 1970s portray the artist in various disguises.
The Collection Reviewed: Modern Art (runs indefinitely) Works by George Bellows, Jean Dubuffet and others.

Arts and Industries Building Discovery Theater
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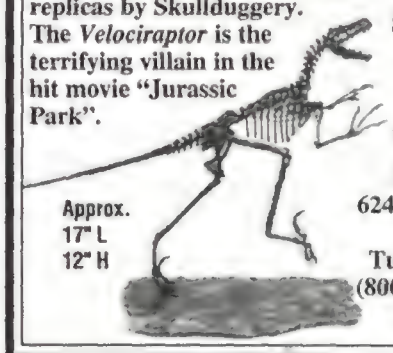
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ISRAEL, *May*	SOUTH INDIA, *Nov*
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National Portrait Gallery
In Pursuit of the Butterfly: Portraits of James McNeill Whistler (April 7-August 13) Exhibit traces the evolution of Whistler's self-constructed image as a popular icon in Victorian England.
Majestic in His Wrath: The Life of Frederick Douglass (through November 19) Exhibition marks the 100th anniversary of Douglass' death.

National Museum of American Art
Jim Nutt (through May 21) Retrospective surveys the work of the internationally recognized contemporary painter.
The Color of Abstraction (through August 20) Exhibit highlights the museum's holdings of Color Field Painting.

Renwick Gallery
Uncommon Beauty in Common Objects: The Legacy of African-American Craft Art (April 7-June 18) Ceramics, fiber, jewelry, furniture, basketry, leather, glass.
Full Deck Art Quilts (through April 30) A deck of playing cards provided the inspiration for this unique exhibition of quilt art.

Anacostia Museum
Art Changes Things: The Art and Activism of Georgette Seabrooke Powell (through May 28) The work of the post-Harlem Renaissance artist—paintings, drawings, photographs, personal memorabilia.

S. Dillon Ripley Center, Internationl Gallery—Concourse
Benedicte Wrensted: An Idaho Photographer in Focus (through April 2) Portraits taken by the Danish-born photographer in her Idaho studio in the late 19th century document Native Americans.

Heye Center, National Museum of the American Indian (New York)
Creation's Journey: Masterworks of Native American Identity and Belief (runs indefinitely) First of three inaugural exhibitions features 165 objects that date from 3200 B.C. to the present.
All Roads Are Good: Native Voices on Life and Culture (runs indefinitely) More than 300 objects, from Ojibwa bandolier bags to Kwakiutl wood carvings.

Cooper-Hewitt, National Design Museum (New York)
Kitsch to Corbusier: Wallpaper from the 1950s (April 11-August 27) Designs drawn from the museum's collection reflect the postwar interest in modern art, European travel, teen culture, the burgeoning suburbs and technology.

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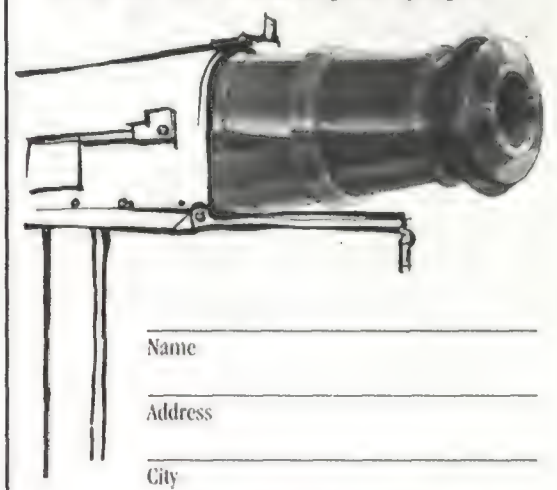

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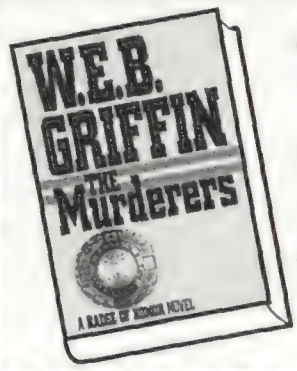

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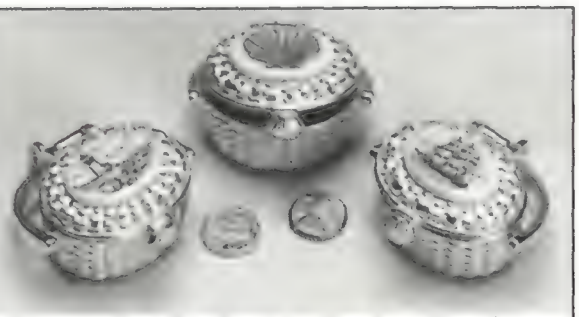

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The Smithsonian Associates, U.S. and International Events

The Smithsonian Associates will visit San Jose, California, April 5-9. Highlights of the program will include a jazz concert and lectures on space exploration and American art. Associates in San Jose will receive brochure invitations. For information, contact: U.S. and International Events, 1100 Jefferson Drive, S.W., MRC 702, Washington, D.C. 20560; or call: (202) 357-4800, ext. 274.

The Smithsonian Associates, Resident Program

To join the Resident Program, or to obtain fee and ticket information, call (202) 357-3030. April events include:
Achieving Fundamental Fairness in a Democracy: An Evening with Lani Guinier (April 12; 7 P.M.) Lecture, book signing.
An Evening with Mark Twain (April 21; 7:30 P.M.) Performed by Michael Mauldin.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here are some April exhibits:
• Fairbanks, Alaska (April 8-May 21) *The Tongass: Alaska's Magnificent Rain Forest,* University of Alaska Museum.
• Providence, Rhode Island (April 6-May 18) *Beyond Category: The Musical Genius of Duke Ellington* (small-format version), Providence Public Library.

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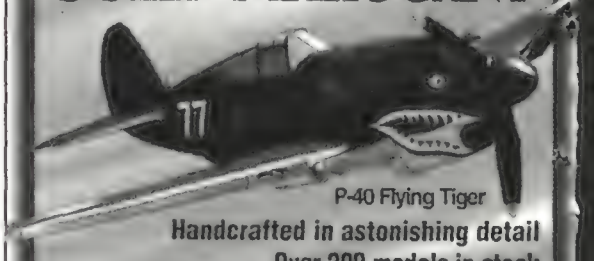
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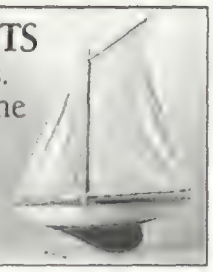

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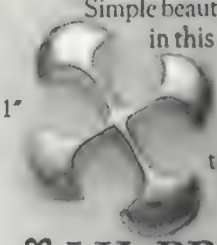

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Lake Missoula Floods (p. 48)

"Case for periodic, colossal jökulhlaups from Pleistocene Glacial Lake Missoula" by Richard B. Waitt jr., *Geological Society of America Bulletin*, October 1985

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Bill Truesdell, Oryx Press (Phoenix, Arizona), 1985

Rough and Tumble Engineers' Historical Association, P.O. Box 9, Kinzers, Pennsylvania 17535 (Open year-round; admission $2 for nonmembers. Phone: 717-442-4249)

Ice House Museum, 303 Franklin Street, Cedar Falls, Iowa 50613 (Open May 1-October 31; free admission. Phone: 319-277-8817 or 319-266-5149)

Santa Cruz Surfing Museum, 1305 East Cliff Drive, Santa Cruz, California 95062 (Open year-round; free admission. Phone: 408-429-3429)

Miles Musical Museum, P.O. Box 488, Eureka Springs, Arkansas 72632 (Open May 1-October 31; admission $5.50, children under 6 free. Phone: 501-253-8961)

Mario Lanza Museum, 416 Queen Street, Philadelphia, Pennsylvania 19147 (Open year-round; free admission. Phone: 215-468-3623)

Forrest Ackerman's Sci-Fi and Monster Mansion, 2495 Glendower Avenue, Hollywood, California 90027-1110 (Open on selected Saturdays; free admission. For open house schedule, call 213-MOON-FAN)

National Museum of Roller Skating, 4730 South Street, Lincoln, Nebraska 68506 (Open year-round; free admission. Phone: 402-483-7551)

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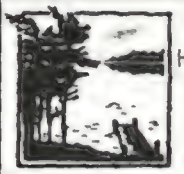

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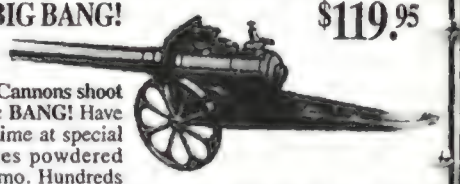

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Save Outdoor Sculpture! (p. 140)

Update (newsletter), SOS!: National Institute for the Conservation of Cultural Property, 3299 K Street, NW, Suite 602, Washington, DC 20007

"An Inside Look at Outdoor Conservation" by Jean Lawlor Cohen, *Sculpture*, November-December 1988

Guide to the Maintenance of Outdoor Sculpture by Virginia Naude and Glenn Wharton, Institute for Conservation of Historic Public Works (Washington, DC), 1993

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Bulletin of the Library of Natural Sounds, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14850 (Phone: 607-254-2404)

Quiet Places: A Sound Walk Across Natural California (CD) by Paul Matzner, Oakland Museum, 1992

Voices of the Cloud Forest (CD or cassette) by David L. Ross jr., Cornell Laboratory of Ornithology, 1992

The Soundscape Newsletter, School of Communication, Simon Fraser University, Burnaby, British Columbia, Canada V5A 1S6 (Fax: 604-291-4024)

Our Sonic Environment and the Soundscape by R. Murray Schafer, Destiny Books (Rochester, Vermont), 1994

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For this anniversary issue, we decided that they deserved to take one last bow.

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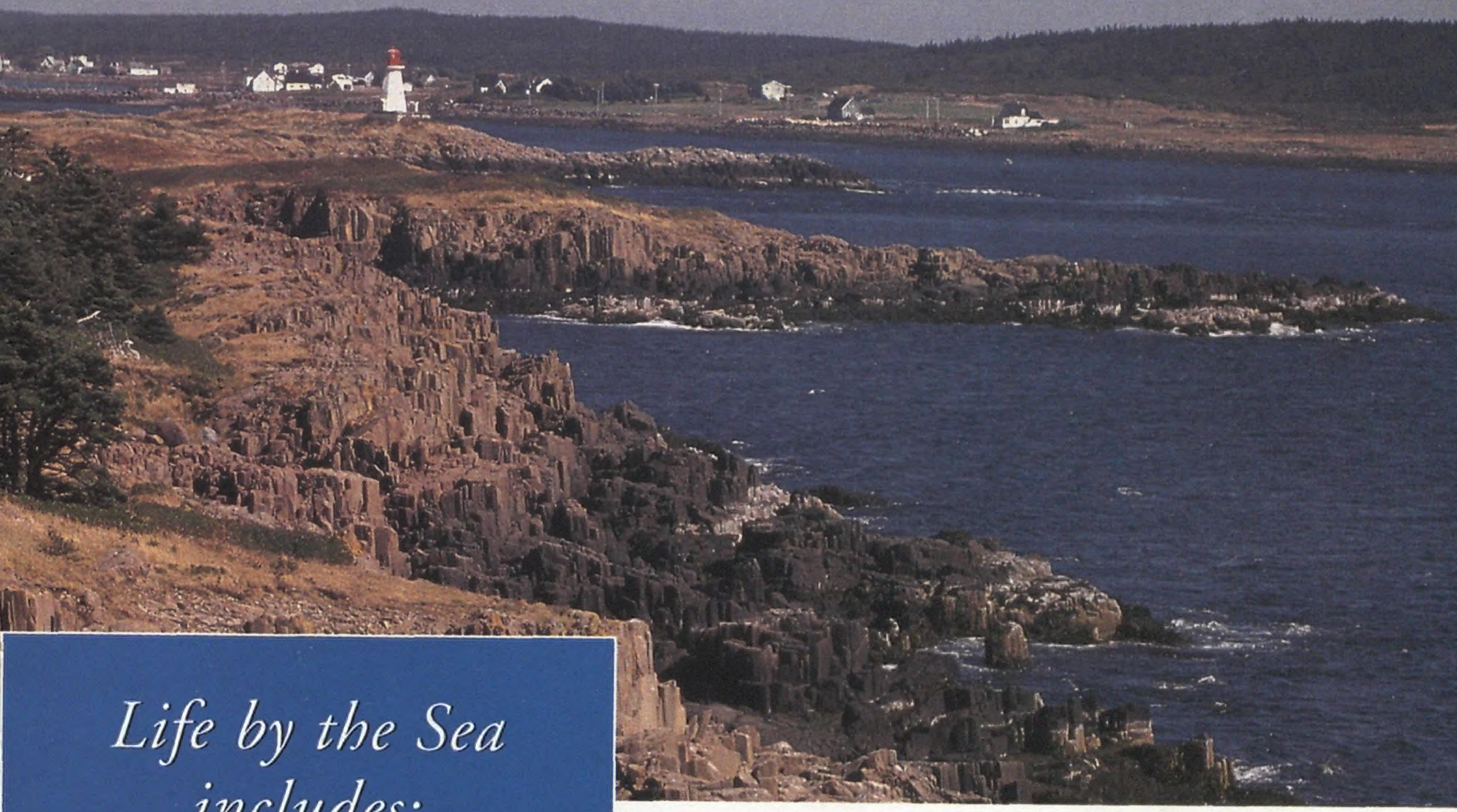

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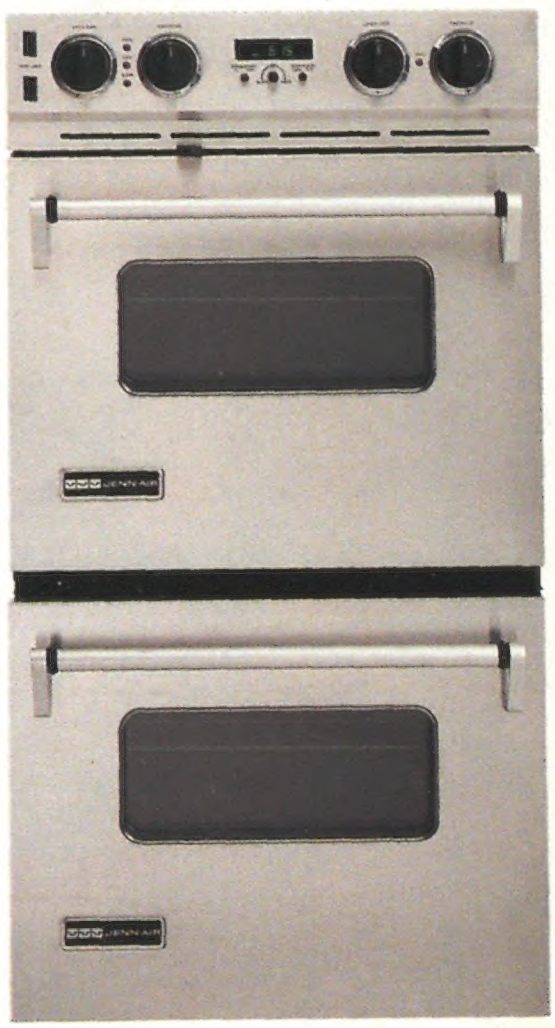

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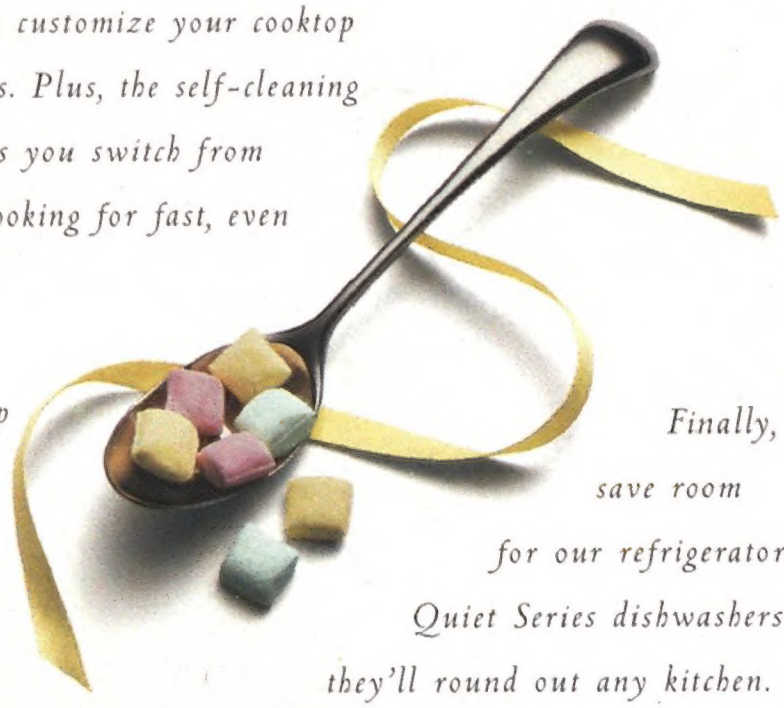

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